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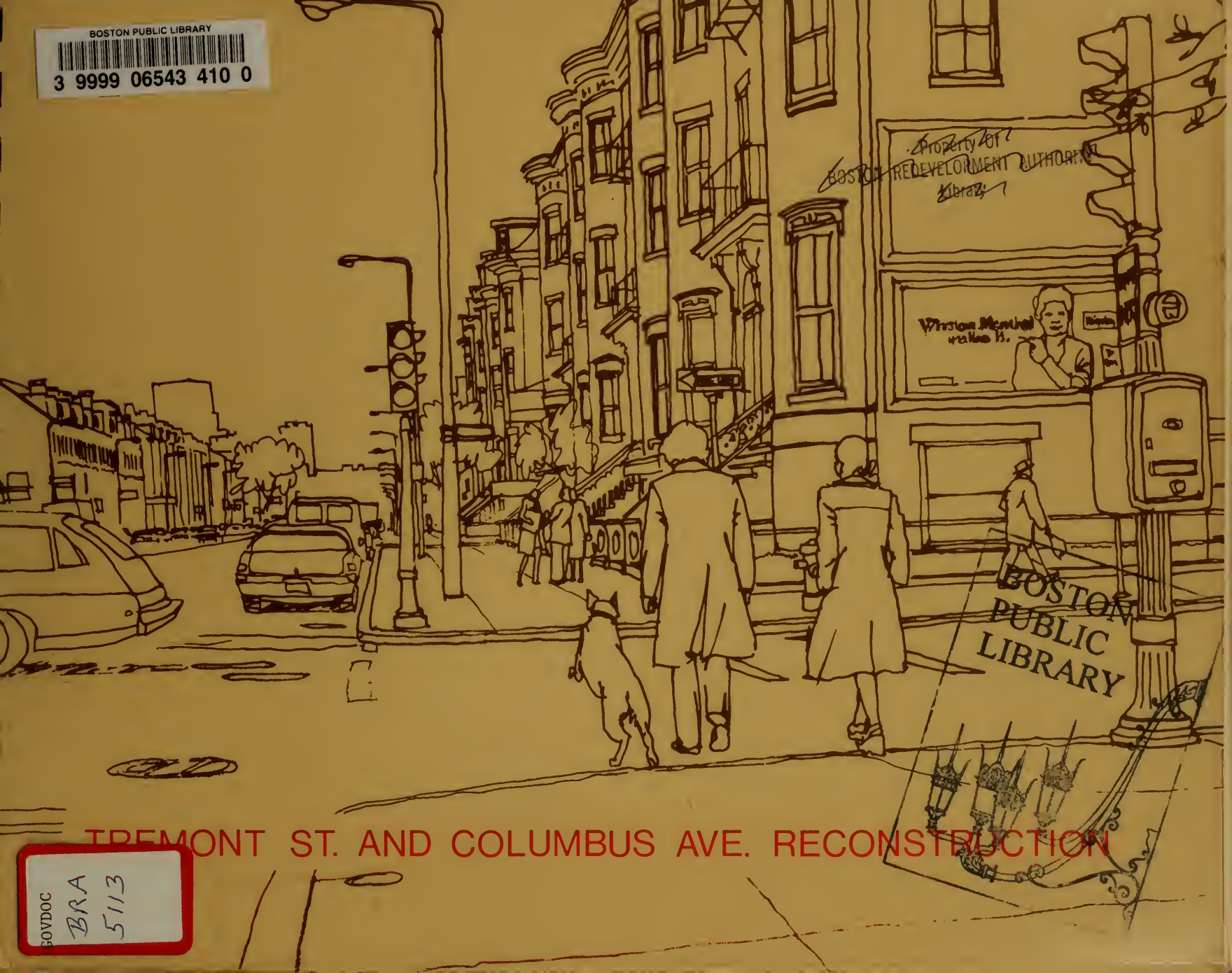

TREMONT ST. AND COLUMBUS AVE. RECONSTRUCTION

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TREMONT STREET AND COLUMBUS AVENUE RECONSTRUCTION

A PRELIMINARY DESIGN REPORT

PREPARED FOR
THE BOSTON REDEVELOPMENT AUTHORITY
BY
CE MAGUIRE, INC. AND
CHILDS BERTMAN TSECKARES ASSOCIATES, INC.

JULY 1975

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1 INTRODUCTION

THE RECONSTRUCTION OF TREMONT STREET AND COLUMBUS AVENUE

Between October 1974 and July 1975 a major design effort was going on within the City of Boston to redesign two of the City's major intown residential streets, Tremont Street between Arlington Street and Sarsfield Street and Columbus Avenue between Clarendon Street and the proposed South West Corridor. This involves approximately 2-1/2 miles of urban streets with all the complexities of utilities, traffic, and a myriad of other details inherent in city reconstruction work. The thrust of the design of the two streets is to organize the motor vehicle traffic while encouraging the use of bicycles as well as enhancing the pedestrian ways and uses of the street.

Scope of Work

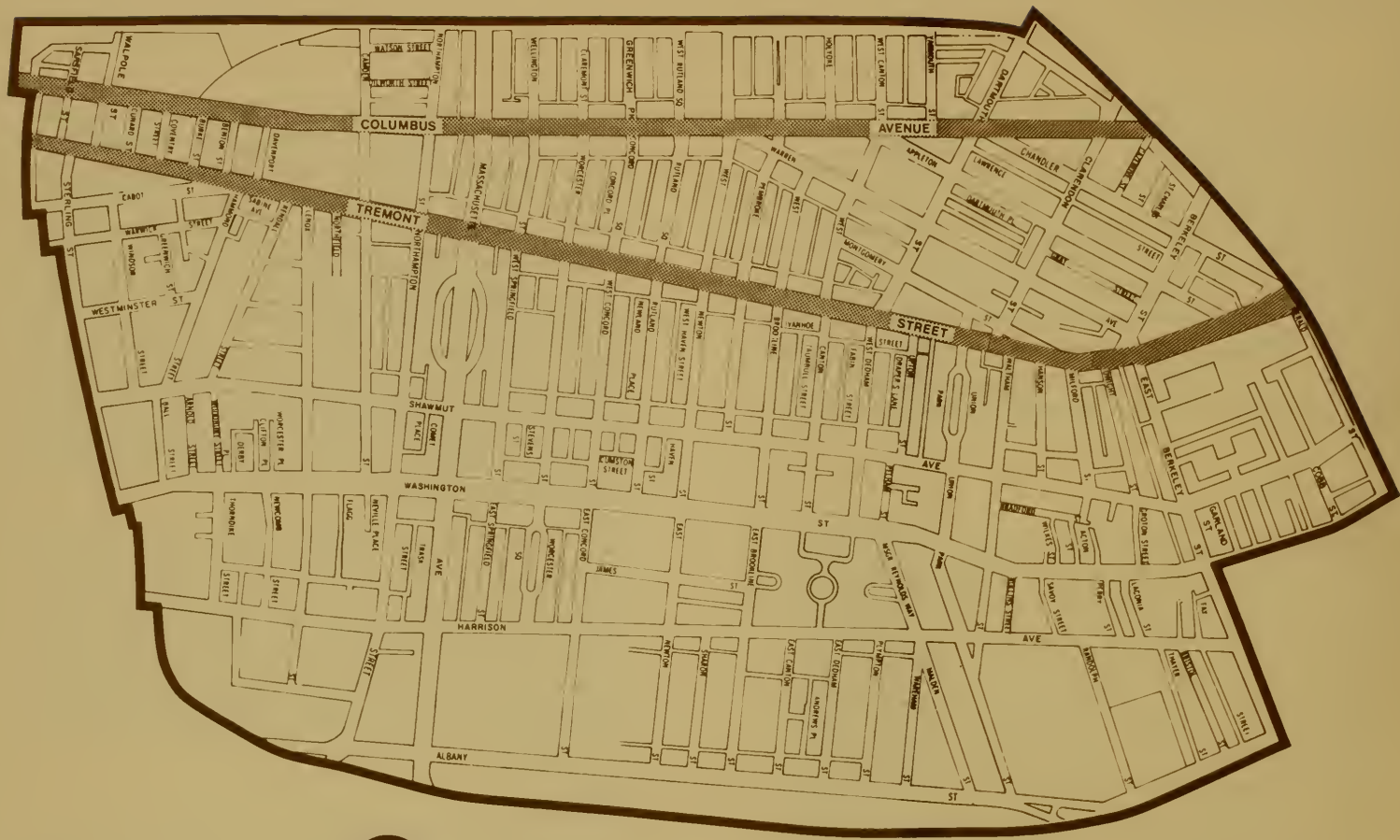
The scope of the project has been limited as being primarily within the public right-of-way of the two streets as well as up to 100 feet into the side streets for transition purposes. The reconstruction proposed shall primarily be for surface only (lighting, trees, sidewalks, pavement), since the major utility work underground is presently on going under various Boston Redevelopment Authority (BRA) site preparation contracts. Included in the area, as a result of reorganizing the street scape, are a series of vest pocket sitting parks and urban spaces. In addition, major pedestrian spaces have been created in linear fashion along both streets as well as at key points along the roadways.

The reconstruction of Tremont Street and Columbus Avenue, when completed, will create a physical improvement to the South End portion of the City of Boston as well as increase the potential for maintaining the South End as a residential entity within the city. The streets provide a multiplicity of uses at present and must continue to provide this in a more orderly and environmentally pleasing way in the future. The amount and speed of vehicular traffic, coupled with the pedestrian flow, makes the two streets an anomaly. That is, there is not enough vehicular traffic to have someone feel uncomfortable in crossing the street at any point, and yet there is too much movement to allow complete feeling of safety in crossing at any point. This condition is further exacerbated by the existing street traveled dimension and the short block lengths entering onto both arterial roadways. The side streets intersect at approximately 200 foot intervals along each major street.

Each day approximately 40,000 vehicles use Tremont Street and Columbus Avenue. Numerous bicycles use both streets to commute to downtown as well as going to schools and institutions within the area. MBTA bus lines provide service on both streets as well as crossing both streets. Merchants and businesses of all types are housed within the buildings along the avenues and draw on pedestrian and vehicular traffic for their clientele.

Background

The following are excerpts from the "Statement on South End Transportation Issues" which was used as a basis for the design development, as these items represent issues and ideas agreed to by the Mayor's office, the BRA, and the community via SECOT (the South End Committee on Transportation) and SEPAC (the South End Project Area Committee).



Location Map — South End Project Area

STATEMENT ON SOUTH END TRANSPORTATION ISSUES – September 6, 1974

"Context

Many public and private efforts are being directed at revitalizing and improving the environment of Boston's South End, primarily to strengthen its character as a place to live. Preservation and rehabilitation of the attractive 19th century residences, the building of new housing, schools and parks, and improvements to utilities, streets and public services are included in the renewal program. Transportation ranks as a major issue along with economic and social concerns in achieving community wellbeing.

Located in a vulnerable gateway location adjacent to the Downtown and Back Bay/Fenway areas, the South End serves as a "doormat" to many people driving cars through its streets, both in crosstown and radial directions on the way to jobs, business, shopping or recreation. This traffic tends to erode the livability of the South End with noise, air pollution, congestion and safety hazards, and is therefore perhaps the most pressing transportation issue. The other issues of this kind involve the maintenance and improvement of public transportation along with reasonable parking arrangements for resident cars, as well as the possible establishment of bicycle paths, control of truck routings and street maintenance.

This Statement (the following description of Tremont Street and Columbus Avenue) is intended at BRA's understanding and position on transportation policies directed at improving the South End and at the same time serving general transportation needs of the public.

Columbus Avenue/Tremont Street

Due to overall proximity to one another and a joining together into one functioning street to the south, Columbus Avenue and Tremont Street have been viewed as one project. Although the future concentration of major traffic to one street or the other is subject to further discussion, the present concensus is that there be a balance of traffic, not necessarily exactly 50-50, on each street due to matters of business interests and traffic load sharing. A parking or curb service lane will have to be maintained in most instances, on each side of both streets, desirably shadowed by roadway "neckdowns" (sidewalk widenings) for lane definition and shorter crosswalks. A total of about four moving lanes during peak hours in the dominant flow direction at the key Massachusetts Avenue intersections are necessary for service of existing traffic on Columbus and Tremont.

In looking toward future rehabilitation of these streets the following major design and layout elements were evaluated during the course of discussion with SECOT:

1. Desirable widths of sidewalks with different urban design assumptions.

2. Exclusive bus lanes

3. Number of signalized intersections

4. Whether the two streets could be designed as a one-way pair or would continue as a two-way streets.

5. As two-way streets, what would be desirable?

   – Median or painted centerline?

   – If a median provided, what width?

   – Left turn storage lanes in median at key points?

   – Different number of lanes in each direction on either street?

   – Reversible lanes?

On the matter of unsymmetrical and/or reversible lane arrangments for two-way traffic, it is strongly felt that such arrangmeents are awkward, confusing and difficult to control under these circumstances, and should be avoided.

A protracted debate on the optimum combination of the various design elements and their scale would only serve to defer street improvements which are needed now. A basic design should be settled on in the near future, coupled with a program for detailed design and construction.

For the foreseeable future it appears as if a one-way pair circulation pattern for the streets is not feasible, due to prob-

lems of combining flows on the intown end, providing two-way bus service on either street and SECOT concerns over possible increases in cross street traffic. It is therefore proposed that the future design of Columbus Avenue and Tremont Street consists of two two-way streets.

On Columbus Avenue, an 80-foot right-of-way is available, presently divided into two 30′ roadways, and 4-foot median and two 8-foot sidewalks. It is proposed that the street be rebuilt with one 50′ roadway providing four lanes with possibly a cobble median, and 30 feet for sidewalks. Parking would have to be prohibited on the side of greater traffic flow during the peak hours. Special treatment at the intersection of Massachusetts Avenue, with left turning lanes will have to be considered in the design stage, according to specific capacity requirements.

Tremont Street has a 100-foot right-of-way consisting of an undivided 70-foot roadway and two 15-foot sidewalks. It is proposed that the street be reconstructed with four moving lanes and two parking/service lanes which would be defined by neckdowns. The dimensions would be 44 feet for the moving lanes and 8 feet for each parking lane, leaving 40 feet for sidewalks. Alternately a pedestrian refuge and planting median with no left turn lanes, discontinuous at all cross streets may be considered. The extra width would be taken from the 40-foot sidewalk allowance. At neckdowns, the sidewalks would be 8 feet wider on each side. As with Columbus Avenue, a special roadway design should be considered at Massachusetts Avenue.

The design of improvements should include traffic controls, plantings, lighting, street furniture, bus shelters and pertinent urban design features in addition to the regular street reconstruction. During the design stage the community will be able to inject further design comments and review plans as the project progresses.

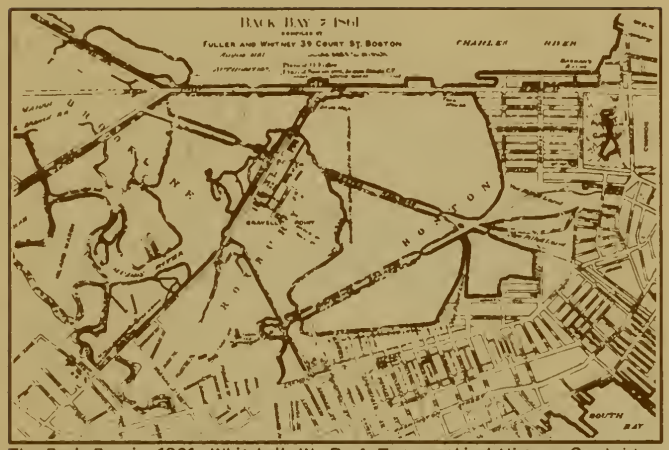
Addressing the total issue of Columbus/Tremont improvements, it is hoped that total agreement on the above or variant thereof might be achieved in the very near future, so that design may be initiated as part of the Federal/State Urban Systems program on a high priority basis.''

View of Boston from Tremont Street near Chester Park. Stanwood, E. Boston Illustrated. Boston Mass. James R. Osgood & Co., 1875.

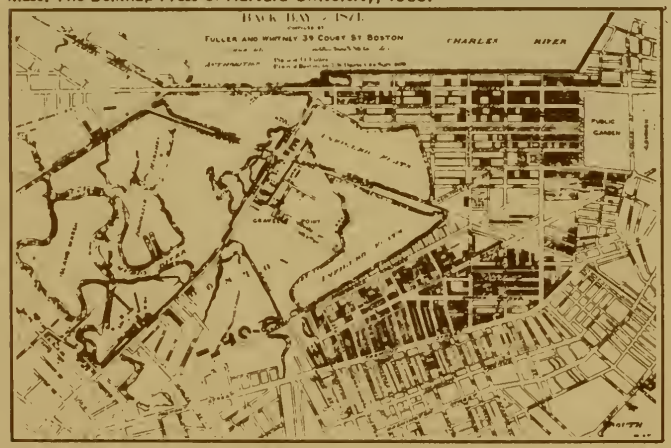
HISTORY

Tremont Street

Although parts of Tremont Street, in what is now Boston's Central Business District have existed since 1708, the street as it concerns us here was built to Roxbury in 1831-1832. Although it was not a parallel street, it was built to approximate the route of the then existing Washington Street which had become quite heavily traveled. In 1856, the Metropolitan Railroad Company began service from Dudley Street terminal to Boylston Street using a horse drawn carriage. The tracks occupying the center of Tremont Street were removed only recently. The west side of the street was developed earlier than the east as this side faced the sun. Topographically, Tremont Street changes axis between Dover Street and Massachusetts Avenue, giving the street extra interest. Houses were often developed as blocks giving the street desirable rhythm. Many landmarks were built along Tremont Street. Notably, the Cyclorama Building, the National Theater (now the Boston Center for the Arts), and the Chickering Piano Factory.



Tha Back Bay in 1861. Whitehall, W. R. A Topographical History. Cambridge, Mass. The Belknap Press of Harvard University, 1963.



The Bay Bay In 1871. Whitehall, W. R. A Topographical History. Cambridge, Mass. The Belknap Press of Harvard Univarsity, 1963.

Columbus Avenue

Columbus Avenue was built during the years 1868 to 1891 although plans were submitted to the City of Boston at a much earlier date. It was built almost entirely over filled land originally extending from the west end of Chester Park, now Massachusetts Avenue and eventually extending to Roxbury. At the time it was designed, it was one of the longest straight streets in Boston and was laid out on a line between Chester Park and Park Square with the Park Street Church as its visual axis. It was originally paved with wood, making the surface quite smooth and not noisy. As a result, it was a popular street for promenading and driving in carriages. It was often used as a ceremonial street for these occasions, houses were draped with bunting and the street took on a festive air. The Centennial of Bunker Hill parade took place on Columbus Avenue, as did many others during the years between 1870-1890. The general decline of the South End began to have an effect around 1890 and by 1895 problems of the street were in an advanced stage. As early as 1893, the street was considered to have potential as a commercial street as an extension from the present Central Business District.

GOALS AND OBJECTIVES

In concert with the BRA and the community, the following were established as the goals and objectives for the reconstruction of these two streets:

- Revitalize and improve the environment of the street, primarily to strengthen its character as a place to live;
- Improve both vehicular and pedestrian safety;
- Improve living conditions on the street and decrease the noise, air pollution, congestion and safety hazards created by excess traffic;
- Improve the ease of movement by segregation and definiton of motor vehicle and pedestrian traffic flows;
- Develop an ease of understanding the street;
- Maintain and improve public transportation;
- Improve the pedestrian environment through wider sidewalks, trees, other plantings, street furniture, bus shelters, signing, signals, and lighting;
- Provide reasonable parking for residents and short term parking for businesses, while excluding spillover parking from adjacent areas;
- Improve the street services and maintenance such as plowing, sweeping and trash collection.

2 PROCESS – PARTICIPATION

PARTICIPANTS AND ROLES

- The Boston Redevelopment Authority (BRA), a city agency responsible for originating, planning, developing and reviewing alternative designs as well as programming and expediting desired projects.

- The South End Committee on Transportation (SECOT), originally an ad hoc group of South End residents formed to deal with pressing transportation issues (South End Expressway, South End Bypass, TOPICS) and now a recognized subcommittee of SEPAC, to deal with continuing improvements to South End transportation-pedestrian, public and automobile. Participation is open to all interested South End residents.

- CE Maguire, Inc. — CBT Associates, Inc. (CEM/CBT), consultant team engaged by the Boston Redevelopment Authority to design the reconstruction of Tremont Street and Columbus Avenue.

Neighborhoods

MECHANICS OF PROCEDURE

Neighborhood and Special Interest Group Meetings

Within the South End, 22 identified political bodies exist, some more defined than others and these existing groups were used as one basis for the community input along the two streets. While many neighborhood groups spanned both sides of Columbus Avenue, none of the groups encompassed both sides of Tremont Street. Within each neighborhood group, a core group of five to seven people volunteered additional time and effort to review plans and to act as spokespeople for their respective neighborhood or interest group to the design team. The neighborhood meetings, generally held along the two streets, began with the introduction of the problem as well as the range of options and probabilities. As shown in Table 1, a number of meetings, three for each political body, were held. The first meeting identified the schedule, existing conditions, information sources and methods. The second neighborhood meeting discussed design alternatives for the overall streets as well as design options for bus stop shelter locations, tentative sitting parks, as well as hearing comments from community members not in attendance at previous meetings. A third meeting was held to discuss specific interest in and detail conditions which existed in the particular locale of the neighborhood group. Between the first and last meetings, input was made via the core group as well as from street comments as gathered by the community coordinator.

Models and perspective drawings were used to illustrate a number of three dimensional questions as well as giving a better understanding of the proposed changes.

In some cases, meetings were conducted totally in Spanish, while in others a combination of Spanish and English was used to clarify the options and opportunities afforded by the reconstruction.

Meeting times were at the convenience of the community group and meetings were held both day and night, and on weekends. In addition, two schools in the immediate impacted area were contacted and groups of students spoken to in regard to their needs, desires and comments.

Core Group Clusters

Workshops

A series of workshops were held between October 1974 and June 1975 with the members of the South End Committee of Transportation (SECOT), the Boston Redevelopment Authority (BRA), the City of Boston Traffic & Parking Department, Boston Public Works Department, Massachusetts Department of Public Works (MDPW), The Executive Office of Transportation and Construction (EOTC), The Federal Highway Administration (FHWA) and the consultants in attendance. The workshops endeavored to keep all parties abreast of community thoughts on the reconstruction as well as to discuss and resolve the overall design criteria and traffic considerations. This included a major investigation of roadway configuration, on street parking delineators (neckdowns), traffic turning movements, proposed street direction changes as well as modification of side street geometrics. The workshops were held at either the BRA South End Site Office, the United South End Settlement House, 20 Union Park, or at 306 Dartmouth Street.

EXIT

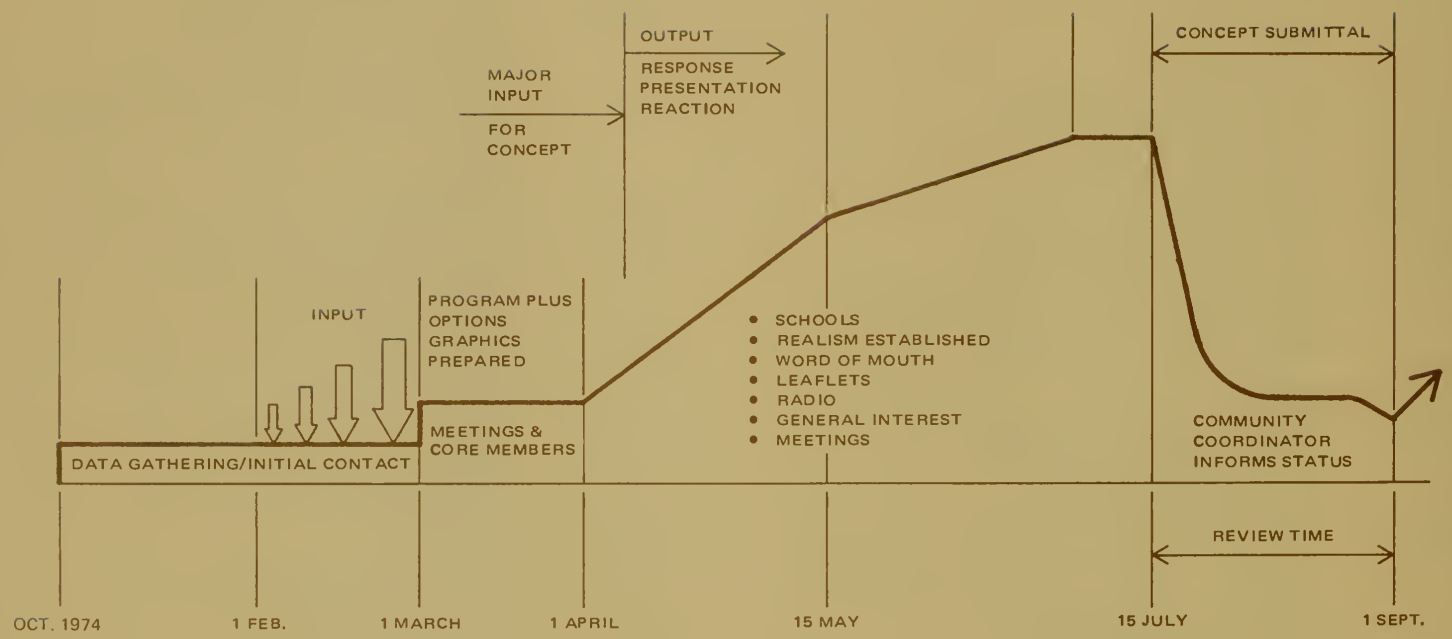
Public Information Meetings

In addition to the previously mentioned types of meetings and workshops with the community, two public information meetings were held on February 12 and April 9, 1975. The purpose of these was not only to inform the general public of progress in the design development process but also to extract ideas and receive comments relative to the project. This was of particular importance because it gave interested parties the opportunity to voice their opinions on issues relative to the entire streets which were not emphasized at individual neighborhood or special interest group meetings.

SCHOOLS
CORE
CORE
CORE
CORE
CORE
MAYOR
STREET
COMBINE CORE
BUSINESS MEN
COMBINE CORE
SOCIETIES
COMBINE CORE
EOTC
CONCEPT SUBMITTAL

COMMUNITY MEETINGS

October 25	SECOT Workshop
November 8	SECOT Workshop
November 26	SECOT Workshop
December 12	SECOT Workshop
January 16	SECOT Workshop
January 23	SECOT Workshop
February 10	Pilot Block Neighborhood Association
February 11	8 Streets Neighborhood Association
February 12	Public Information Meeting
February 18	Ellis Neighborhood Association
February 20	SECOT Workshop
February 26	Claremont Neighborhood Association
February 27	8 Streets Neighborhood Association
March 3	Chester Park Neighborhood Association
March 5	United Neighbors of Lower Roxbury Neighborhood Association
	Upton Street Neighborhood Association
March 6	South End Historical Society Neighborhood Association
March 10	Piano Craft Guild Neighborhood Association
March 12	Claremont Neighborhood Association
March 13	Union Park Neighborhood Association
	Ellis Neighborhood Association
March 14	Emergency Tenants Council/IBA
March 17	Pilot Block Neighborhood Association
March 18	United Neighbors of Lower Roxbury Neighborhood Association
	Piano Craft Neighborhood Association
	Ellis Neighborhood Association
March 19	Businessmen's Neighborhood Association
	United Neighbors of Lower Roxbury Neighborhood Association
March 20	Cosmopolitan Neighborhood Association
March 21	SECOT Workshop
March 22	Emergency Tenants Council/IBA
March 24	Union Methodist Church Core Group
	Claremont Core Group
	Chester Park Core Group
March 25	Pembroke Street Association
	Emergency Tenants Council/IBA
March 26	Claremont Neighborhood Association
March 27	8 Streets Neighborhood Association
April 1	Methunion Tenants Council
	Chester Park Neighborhood Association
	ROXSE Tenants Council
April 1	United Neighbors of Lower Roxbury Neighborhood Association
	SEPAC
April 3	Ellis Neighborhood Association
April 4	SECOT Workshop
April 7	Union Methodist Church Core Group
April 8	Claremont Neighborhood Association
	ROXSE Tenants Council
April 9	Public Information Meeting
April 11	SECOT Workshop
April 14	Piano Craft Guild Neighborhood Association
April 15	Mackey School Students
	Ellis Neighborhood Association
April 16	SEPAC
April 17	Castle Square Neighborhood Association
	Bancroft School Students
April 18	SECOT/EOTC
April 29	Businessmen
	West Newton Street Association
April 30	Worcester Street Association
	SECOT Workshop
May 1	BRA Meeting with Director
May 1	Cluster of Core Groups No. 1
May 2	SECOT/Mayor
May 5	Union Methodist Church Leadership Council
May 6	Cluster of Core Groups No. 2
May 8	Cluster of Core Groups No. 3
May 17	Historical Society Exhibit
May 23	SECOT Workshop
June 13	SECOT Workshop



Community interest will pick up in the fall during the final design stage.

Community Interest

DEFINITION OF THE URBAN ENVIRONMENT

In addition to the workshops with SECOT and meetings with community groups, it was apparent that the design would necessitate the gathering of urban design data to be used as a tool to assist in development of a design. By using this method it was envisioned that the final design would not only reflect those ideas interjected by the community's comments but also would follow what the team, as designers, saw as overall functions of the street.

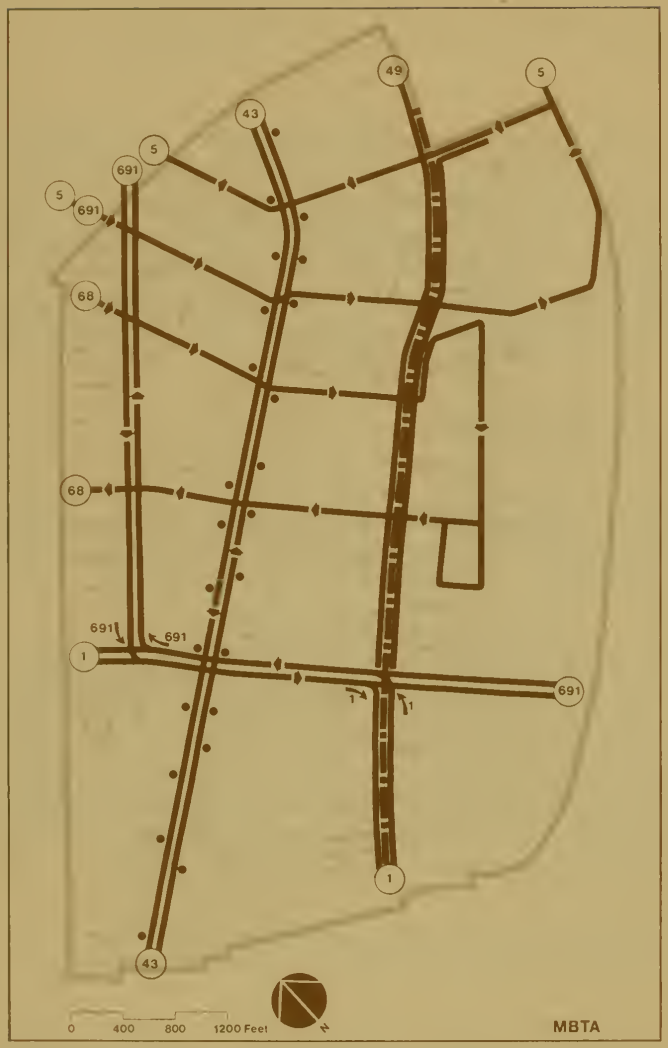
Quality of the Streets

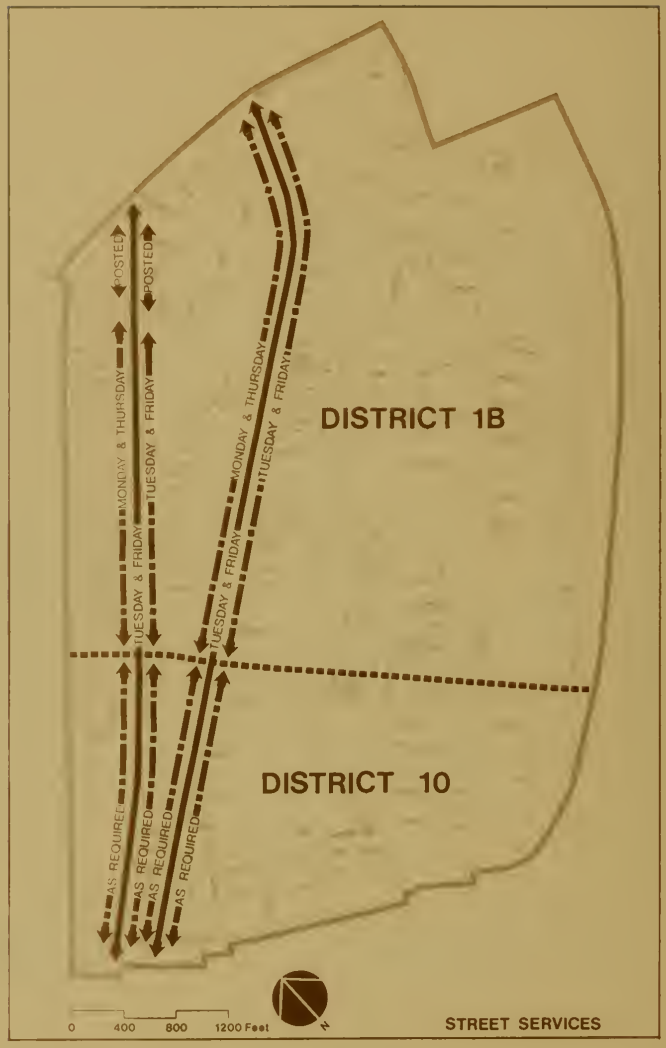
The existing street is a linear system. Its uses are lined up along the edges, and entrances are directly from the street. Doorways, people, color, texture, all enliven the life of the pedestrian.

The newer developments, such as Roxse House and the proposed Carter School, are destroying the urban definition of the two streets. These new developments tend to be inwardly oriented. The buildings generally rise from large areas of open space and are not contiguous with the street. The existing pattern of street fronts is broken by the newer buildings and the previous continuous character of the street is destroyed. Openings appear along the streets like missing teeth.

The urban street is by nature bordered by structures. It is typically hard surfaced from building line to building line.

A series of data maps were prepared which inlcuded the location of city services, i.e., schools, parks, playgrounds, police, fire and the location and frequency of bus service. In addi-





Typical Data Gathering Plates

tion, structures and spaces which were of a special nature were identified along both streets for special consideration. A land use study was made showing a predominance of residential use above ground floor commercial.

Many observations were made at this time to carify the design concept. Parking in many areas of both streets appeared to be commuter-generated. The sunny side of Columbus Avenue could be favored for predestrians. Traffic speed increases on both streets once a car passes the Massachusetts Avenue intersection outbound. Trees placed on the sidewalk can appreciably reduce the apparent width of both the streets and control the pedestrian on the sidewalk.

3 DESIGN DEVELOPMENT

FRAMEWORK FOR ALTERNATIVE CHOICES

The right-of-way design for both streets had a number of givens and a number of variables for the design team to work within. The basis for the plan had been relatively established by the "Statement of South End Transportation Issues" issued in September 1974. Using this Statement as a basis, the designs are in fact variations within the design parameters, rather than widespread alternatives. As such, depressed roadways, elevated roadways, grade separation of transportation modes (i.e., bicycles, trucks, automobiles and pedestrians) were not investigated as reasonable alternatives. In addition, no design time was spent investigating the alternative of making either or both streets discontinuous. Both streets are designed to continue to function in the future as major urban vehicular and pedestrian avenues.

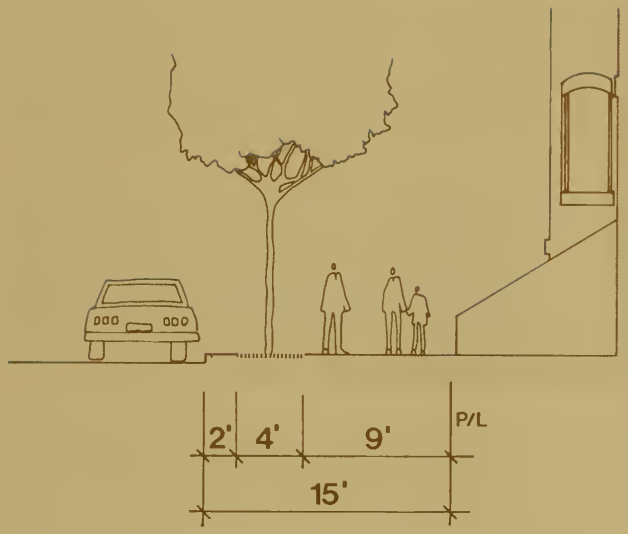
While these alternatives were not investigated for the two main streets, those streets which intersect them were modified to make both Columbus Avenue and Tremont Street function better as designed. This involved a number of physical changes in the intersections as well as discontinuing a number of the side streets in order to reduce the number of potential conflict locations.

All design alternatives were reviewed for safety, livability, security, overall impact, and political acceptability. By organizing the vehicular flow, improved Level of Service of both vehicles and pedestrians could be obtained.

In all of the designs considered, the streets were to be similar for the length of the reconstruction and only minor variations would take place within the public right-of-way as one traveled up the street. Curvilinear winding streets and sidewalks were not considered due to community preferences.

The designs incorporate the use of the street and sidewalk by handicapped people and is reflected in wheelchair ramps, special tree pit considerations, and surface textures. Investigation was undertaken to develop better understanding of the special needs which the handicapped have in making use of the man-made environment.

The historic aspect of the area has also been reflected within the design as it returns the two streets to their previous tree-lined character with an emphasis on the sidewalk and the side street texture. Combinations of brick and concrete as well as granite shall complement the newly reconstructed side streets.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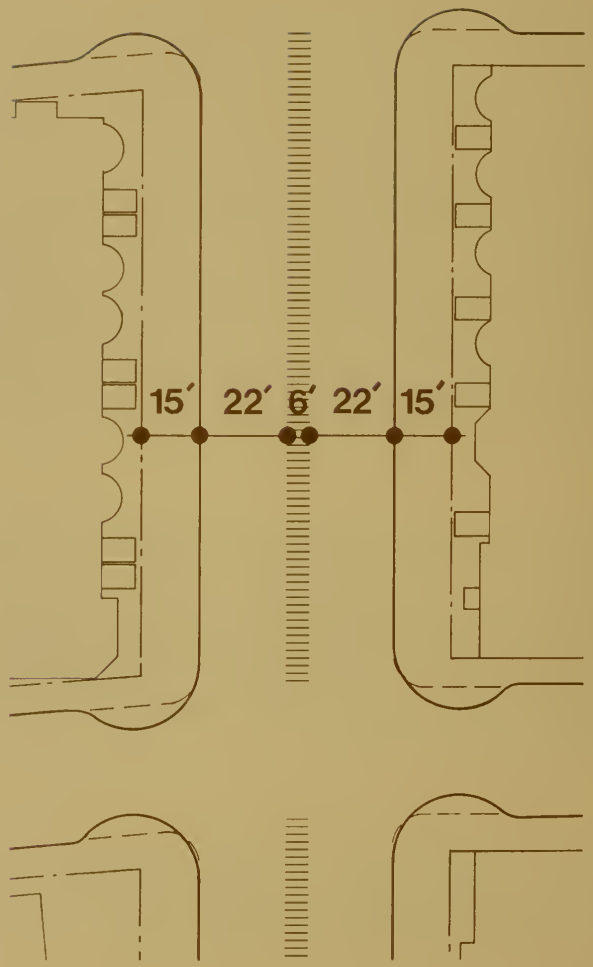
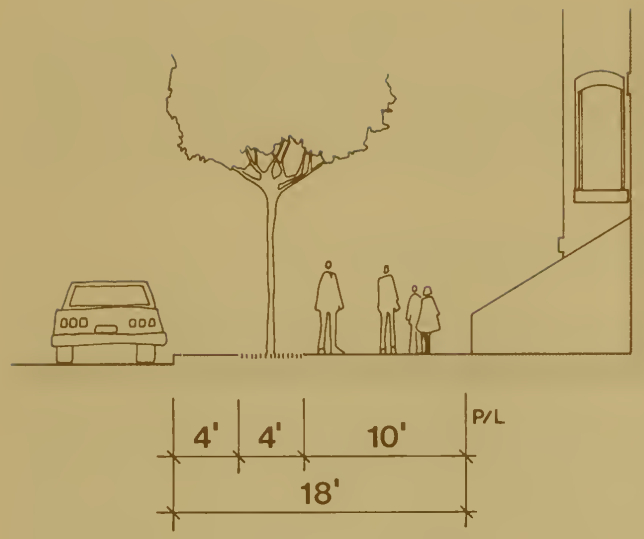

15'
22'
6'
22'
15'

INVESTIGATED DESIGN ALTERNATIVES

Working within the established limits the Design Team, in consultation with the BRA and SECOT, developed five alternative designs: two alternative designs for Columbus Avenue, Symmetric and Asymmetric Alignments; and three for Tremont Street, No Median, Narrow Median and Wide Median.

Columbus Avenue — Symmetric

The first design alternative investigated for Columbus Avenue consists of a 50-foot roadway section having a uniform placement at the centerline of the existing city layout. The roadway section is made up to two 11-foot lanes in each direction being separated by a six-foot rumble strip median. This placement of the roadway section yields a uniform sidewalk width of between 15 and 23 feet. The majority of the sidewalk section, being a composite, is composed of a utility strip of approximately five feet for trees, lighting and other street paraphenialia, and ten feet for pedestrian movement.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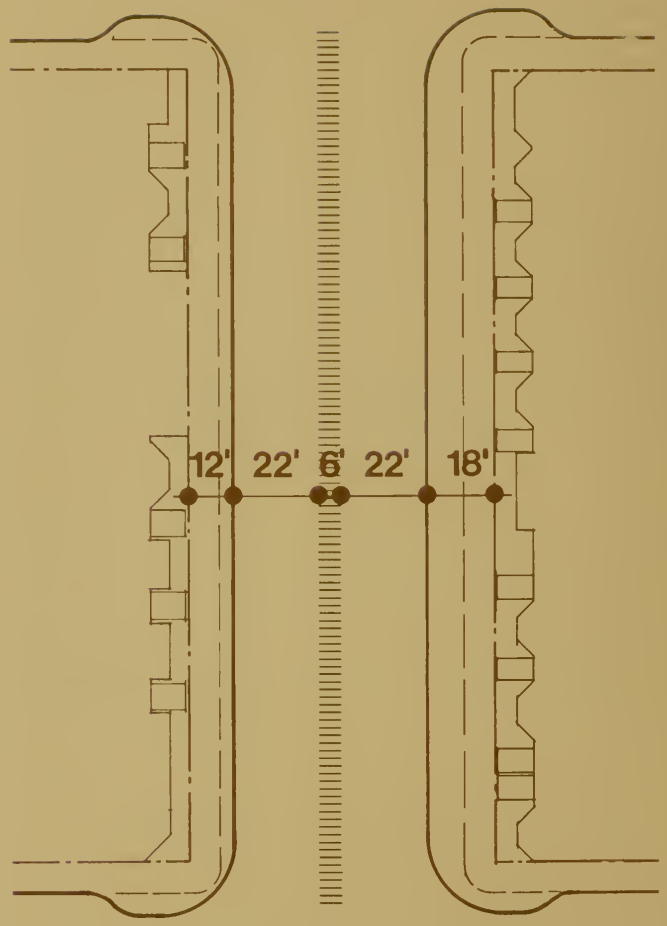
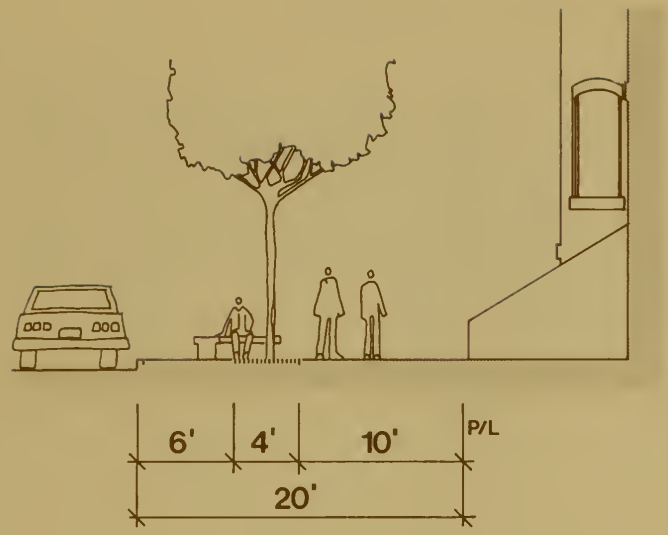
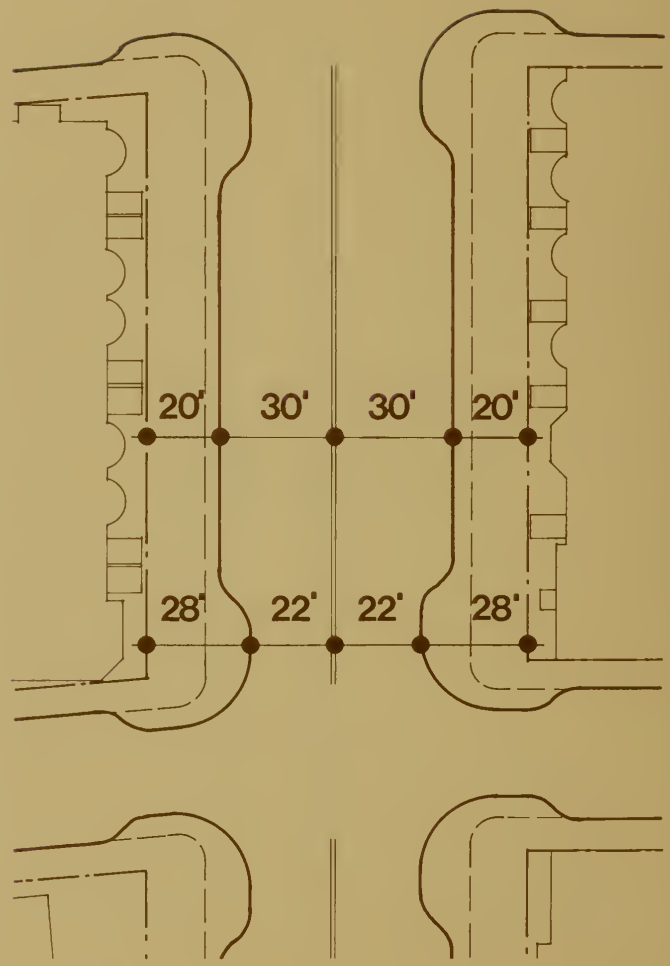
18'


12'
22'
6'
22'
18'

Columbus Avenue — Asymmetric

The second design alternative investigated for Columbus Avenue was a result of offsetting the standard 50-foot roadway section to achieve wider sidewalk areas. The wide sidewalk device was incoporated in certain areas on the street not only in response to their anticipated usage but also to create moments or spaces for nodes of activity to complement existing architectural features making up the streets visual environment.

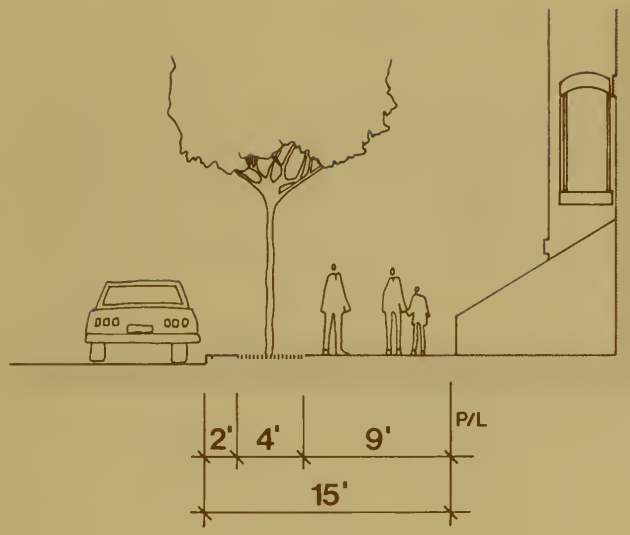

6'
4'
10'
P/L
20'

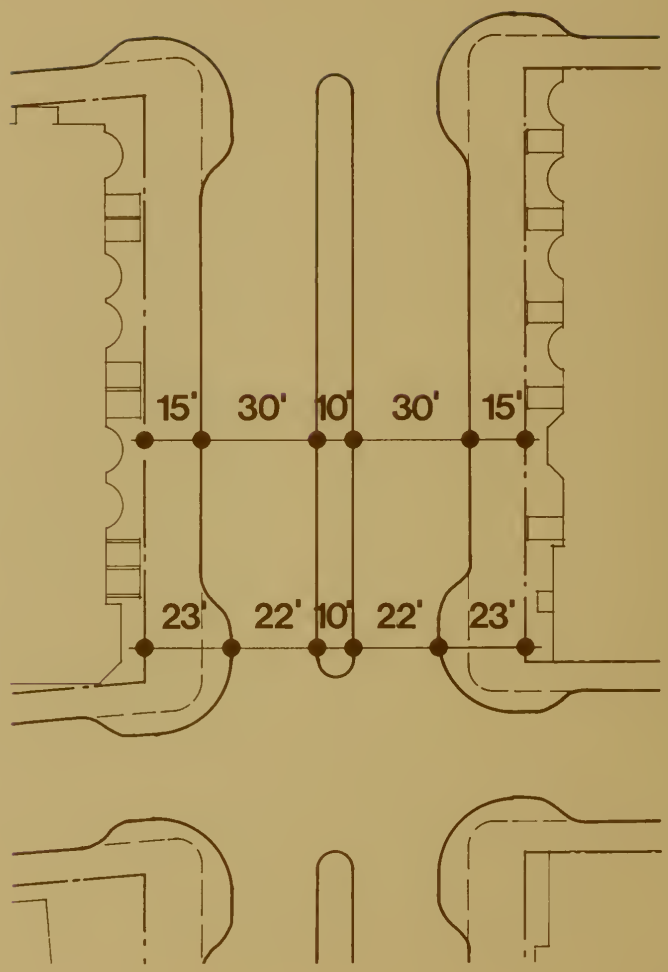

20'
30'
30'
20'
28'
22'
22'
28'

Tremont Street — No Median

The first alternative street alignment to be investigated consisted of a symmetrically positioned roadway. This roadway was made up of four 11-foot moving lanes and two 8-foot parking lanes shadowed by neckdowns at the intersections. Since the city layout is typically 100 feet wide, the resulting sidewalk widths were 20 feet at midblock and 28 feet at the intersections.

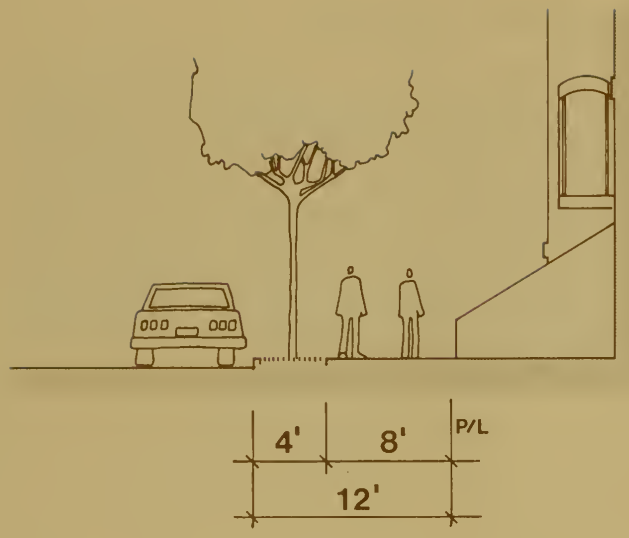
In addition to the wide sidewalks, this alternative is differentiated from the other alternatives by the absence of a median or traffic flow separating device.

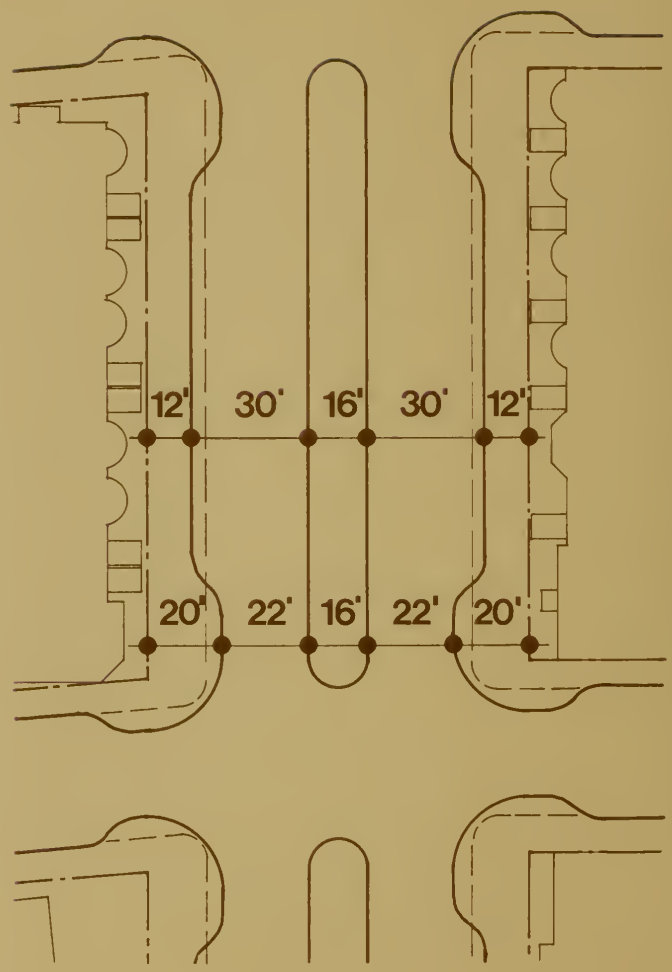

2'
4'
9'
P/L
15'


15'
30'
10'
30'
15'
23'
22'
10'
22'
23'

Tremont Street — Narrow Median

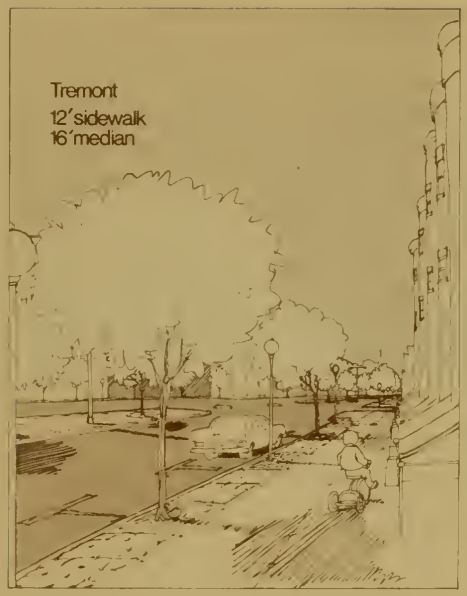
This alternative consisted of essentially the same roadway section as Alternative I with the exception that the design incorporates a minimal median or traffic flow separator. The variation of width for the median in this alternative was between six and ten feet, as this range provided minimums for pedestrian refuge at six feet and plantings at ten feet. As a symmetrical street section, this alternative resulted in sidewalk widths of 17 feet midblock and 25 feet at intersections for the six-foot median, and 15 feet midblock and 23 feet at intersections for the ten-foot median.

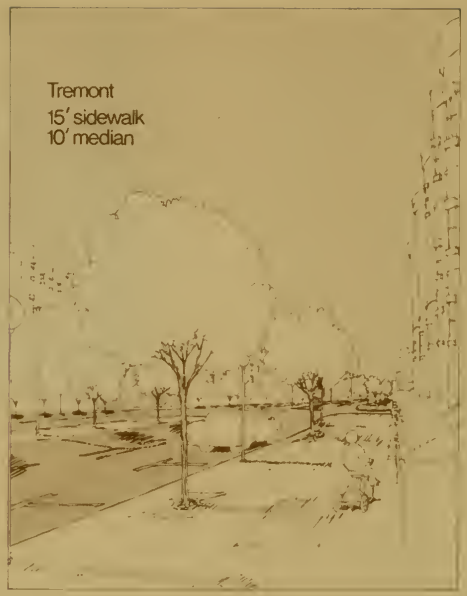

4'
8'
P/L
12'


12'
30'
16'
30'
12'
20'
22'
16'
22'
20'

Tremont Street — Wide Median

This alternative provides the widest median developed in accordance with the established lane number requirements. In development of this alternative, it was established that the maximum practical width would be 16 feet based upon a minimum acceptable sidewalk width of 12 feet. This median width would allow plantings such as trees as well as allow pedestrian usage for purposes other than refuge for street crossings. In contrast to the other alternatives for this street, it was recommended that the majority of the plantings (trees) be incorporated in the median due to minimal available sidewalk widths.


Tremont
12′ sidewalk
16′ median


Tremont
15′ sidewalk
10′ median

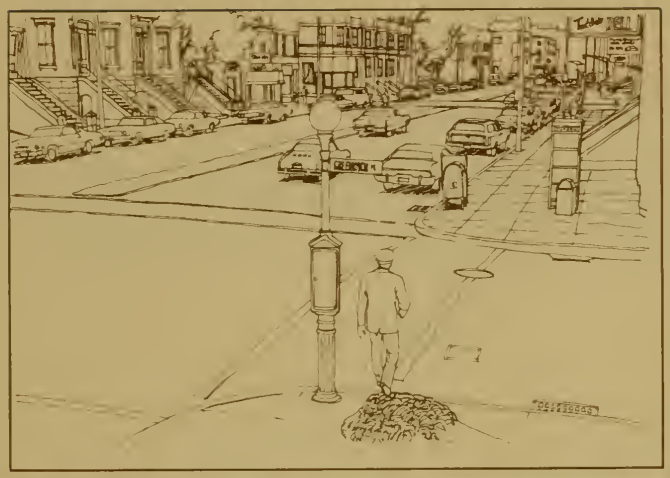
Tremont
20′ sidewalk

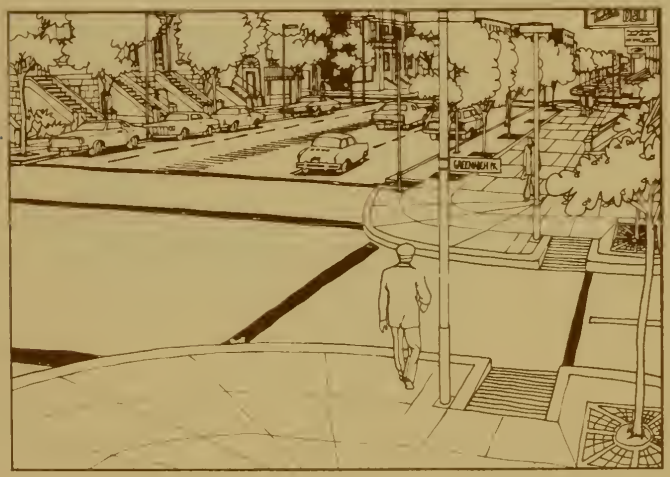
Sidewalk Perspectives

Several methods were utilized to illustrate the various Tremont Street alternatives to Committees and individuals involved in the participatory process. A series of perspective views were developed which afforded a comparison between existing conditions and the proposed designs, all at the same location. Sidewalk treatment possible with the different widths was illustrated in order for all concerned to better relate to the alternative designs.

Crossing Perspectives

To further contribute to citizen understanding of the alternatives, perspective views of the street with the various median treatments were developed. These enhanced the participatory process by allowing the viewer to see the street as it would appear to the pedestrian crossing Tremont Street.




GREENWICH PK

ACCEPTED DESIGN

After many reviews and much comment by those who participated in the process, the following designs were determined by the community to be the best suited to their needs and desires.

Columbus Avenue (Over View)

The design is a combination of the alternative designs studied. The symmetric alignment (Alternative I) is incorporated from the proposed Tremont Street intersection at its southerly limit to the Camden Street intersection. A modified symmetric alignment utilizing transitional rumble strip medians and left turn storage lanes for the Massachusetts Avenue intersection is proposed from the Camden Street interestion to the Worcester Street/Claremont Park intersection. The remaining length of the street uses the asymmetrical design with wider sidewalks on the northwesterly side of the street. By providing a wider sidewalk on the northern side of the street, the design accentuates the sunny side of the street for pedestrian activities. At the same time, this device enhances the general street scape by providing a balance to the mini parks (predominantly on the southern side) and allowing special treatments for architectural highlights as well as improving areas whose facades detract from the street appearance.

In the symmetric portion, the sidewalk widths vary between 15 and 23 feet. The modified symmetric area has the least sidewalk with varying widths from 15 to 12 feet. The remaining length has sidewalk dimensions of 18 feet on the sunny side and 12 feet on the other, uniformly throughout.

As part of this design, Columbus Avenue will have three additional intersections signalized: Tremont Street at the connector, West Canton Street, and Clarendon Street. In addition, Davenport Street, Camden Street north of

Columbus Avenue, and Appleton Street will be closed to normal vehicular traffic with Davenport and Camden Streets being a part of proposed work by others. A new circulation pattern completes the plan by providing reasonable access for residents while at the same time discouraging cross town traffic.

Tremont Street (Over View)

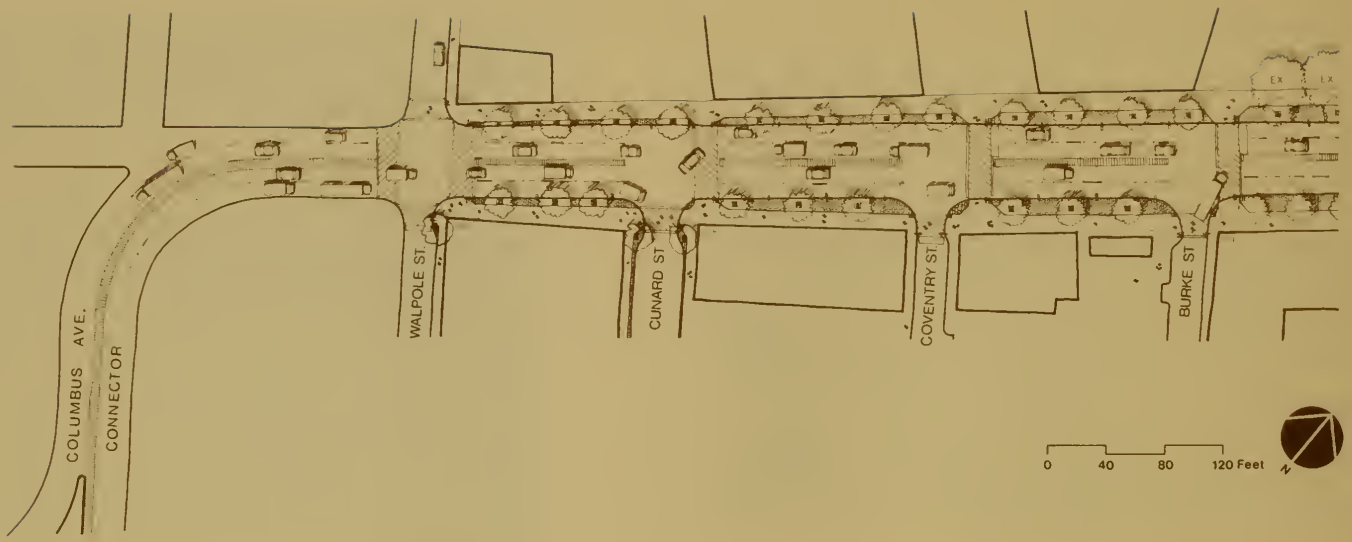
Several cross section designs for the major arterial located on a 100-foot wide right-of-way were investigated in the early stages of this project. It was initially proposed that all intersections be designed with eight-foot "neckdowns" at the corners to delineate the parking lanes and enhance pedestrian safety by reducing the pavement width to be traversed. Four basic design concepts were investigated and presented to the SEPAC/SECOT Steering Committees. All proposals contained two 11-foot travel lanes for each direction of vehicular flow as well as an eight-foot parking lane adjacent to each curb line. Variations in design were in the median/sidewalk configuration utilized in each scheme. In the "no median" proposal, the sidewalk areas available were 20 feet wide, thus providing the maximum area for sidewalk amenities and esthetic considerations.

By reducing the sidewalks to 17 feet, a six-foot median could be provided. This narrow median would afford minimal refuge to pedestrians, but it would provide a positive barrier between opposing traffic flows.

A design utilizing a ten-foot median was considered. This reduced the sidewalk widths to 15 feet but did provide a more acceptable pedestrian refuge. In addition, partial "shadowing" or protection of left turning vehicles would be provided at those locations with an adequate volume demand for this movement.

The final design considered for this facility reduced the sidewalks to 12 feet but provided a 16-foot wide median throughout the length of this artery. Not only would this full width median provide ample refuge area for pedestrians but full protection of left turning vehicles would be provided.

The SEPAC/SECOT Steering Committee chose the "no median" design as being the most desirable and representative of the community's needs. The "neckdown" design proposed for all intersections was modified to provide a two-foot setback from the traveled way thus reducing the "neckdown" width to six feet. In addition to the neckdown modification, each intersection neckdown configuration was custom tailored to the proposed geometrics and expected vehicle usage. The 20-foot sidewalk width is composed of a ten-foot cement concrete walk area and a ten-foot brick accent or utility strip for the proposed trees, planters and other sidewalk amenities.


COLUMBUS AVE.
CONNECTOR
WALPOLE ST
CUNARD ST
COVENTRY ST
BURKE ST
EX
EX
0
40
80
120 Feet
N

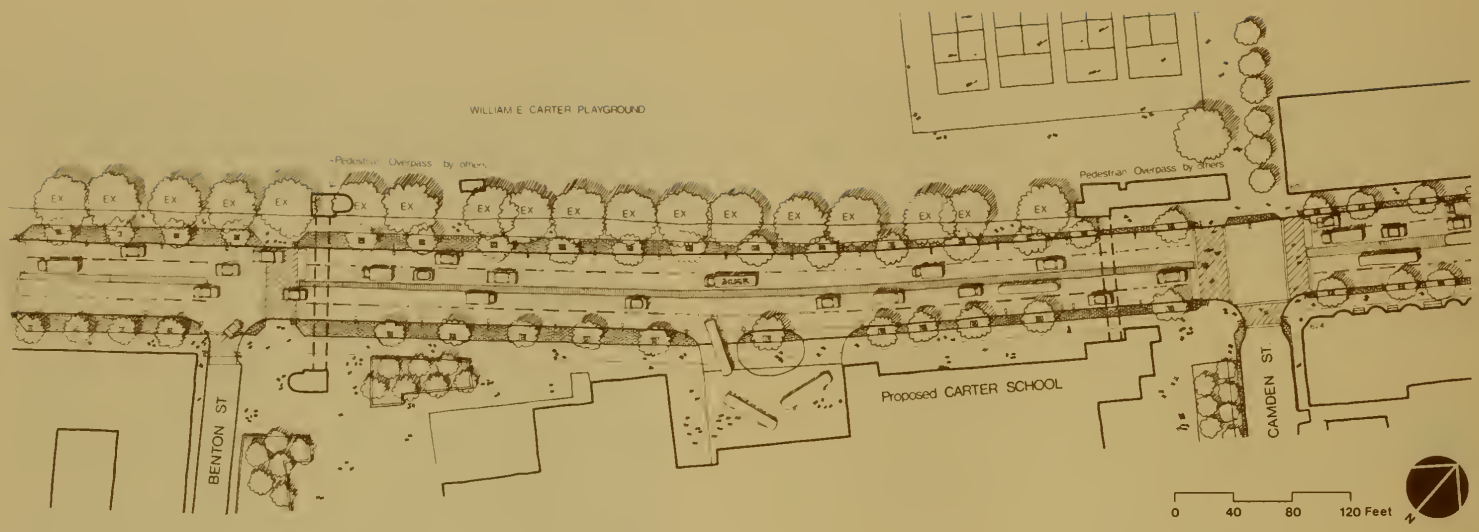
COLUMBUS AVENUE HIGHLIGHTS

Columbus Avenue Connector

As part of the reconstruction of these two streets, the design initiates a part of the joining of the streets at the southwesterly limits of the project, establishing a base for the future implementation of the Southwest Development.* As a result the plan calls for bending the alignment of Columbus Avenue in the area of Sarsfield Street to a northwest-southeast direction utilizing all the present Sarsfield Street right-of-way. Between Tremont Street and Columbus Avenue, the roadway section of the Columbus Avenue Connector (Relocated Columbus Avenue) would be identical to Columbus Avenue, with two 11-foot lanes in each direction, a six-foot rumble strip, and 15-foot sidewalks on each side comprising an 80-foot wide street section. Due to the significance of this turning roadway, the proposed alignment calls for a curved change to present city location lines in the easterly quadrant of the existing Sarsfield Street intersection. In addition, due to the narrowness of the existing Sarsfield Street layout, the Columbus Avenue Connector will require a new city layout on the southwesterly side of Sarsfield Street.

In conjunction with this portion of the reconstruction, it is proposed that the outbound roadway of Columbus Avenue be retained in its present alignment to serve outbound traffic only from the proposed connector at Sarsfield Street to the Ruggles Street intersection.

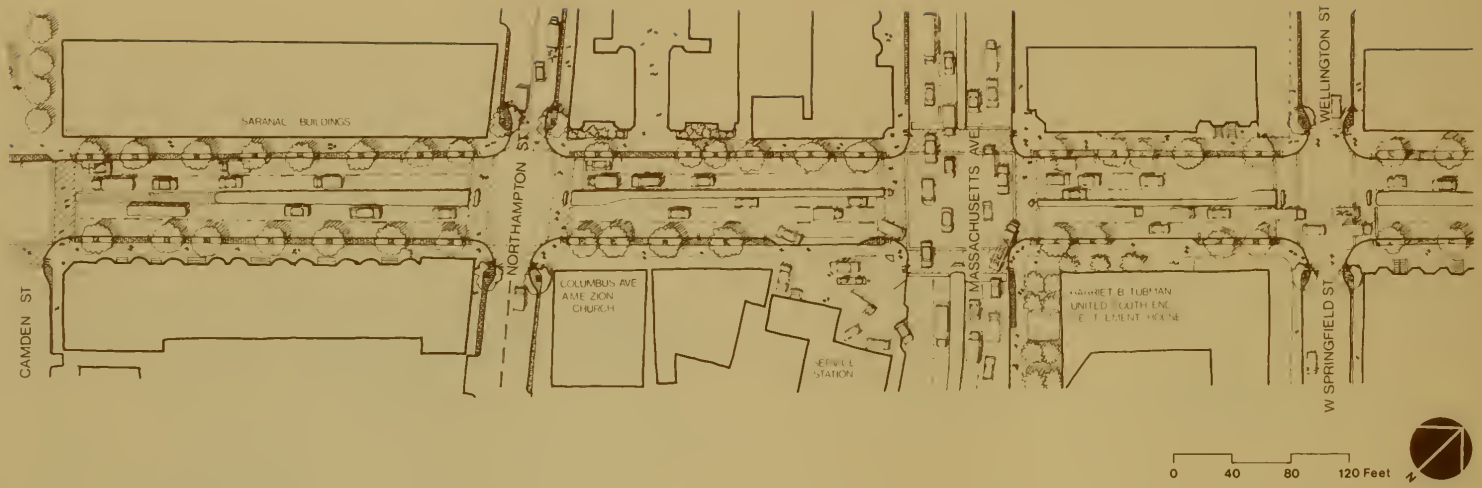
*Southwest Development Report


WILLIAM E CARTER PLAYGROUND
Pedestrian Overpass by others
Pedestrian Overpass by others
EX
BOILER
BENTON ST
Proposed CARTER SCHOOL
CAMDEN ST
0
40
80
120 Feet
N

Carter School Area

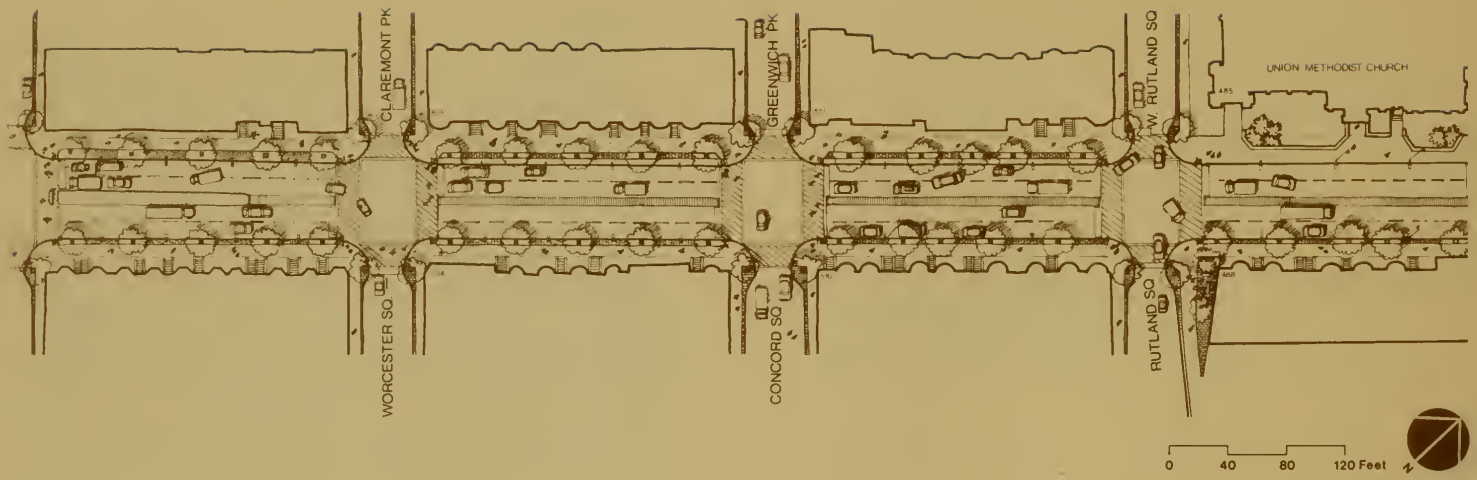
In the vicinity of the Proposed Carter School Development, the roadway has essentially a balanced alignment which evenly splits the street layout, favoring neither side with wider predestrian walks. This area is particularly noteworthy because it will have the widest sidewalks of all with the exception of the vest pocket parks.

Another feature of this area, even though not part of this project but affecting the sidewalk esthetics and street scape, are the two proposed pedestrian overpasses which make the school's open space areas contigious to the school structure. As part of the open space and parking plan for the school, Camden Street, north of Columbus Avenue, is proposed to be closed to normal vehicular traffic and Northamption Street will serve as an access drive to the school parking lot and the residents lot at the Saranac Buildings.


CAMDEN ST
SARANAC BUILDINGS
NORTHAMPTON ST
COLUMBUS AVE
AME ZION
CHURCH
MASSACHUSETTS AVE
HARRIET B TUBMAN
UNITED SOUTH END
SETTLEMENT HOUSE
WELLINGTON ST
W SPRINGFIELD ST
0
40
80
120 Feet
N

Massachusetts Avenue

At the Massachusetts Avenue intersection, as determined by the traffic analysis, Columbus Avenue is proposed to have opposing left turn storage lanes. This device would be introduced to the roadway section at the Camden Street intersection to the southwest and the Claremont Park — Worcester Street intersection to the northeast. At these two locations, the typical six-foot flush rumble strip will begin to transition to the 12-foot flush rumble strip for a one block length toward the Massachusetts Avenue intersection. Subsequently from these two intersections (Northhampton Street and Wellington/W. Springfield Streets) there would be a minimum taper length to the two left turn lanes. The resulting roadway consists of; two 11-foot lanes going away from the intersection, two 11-foot lanes for the through and/or right turn approaches, and a 10-foot left turn only lane, with a two-foot flush median separating the approaching and exiting traffic. The intersection treatment results in 12-foot wide sidewalks for one block either side of Massachusetts Avenue and varying width sidewalks in the areas where the rumble strip tapers from 6 to 12 feet in width.

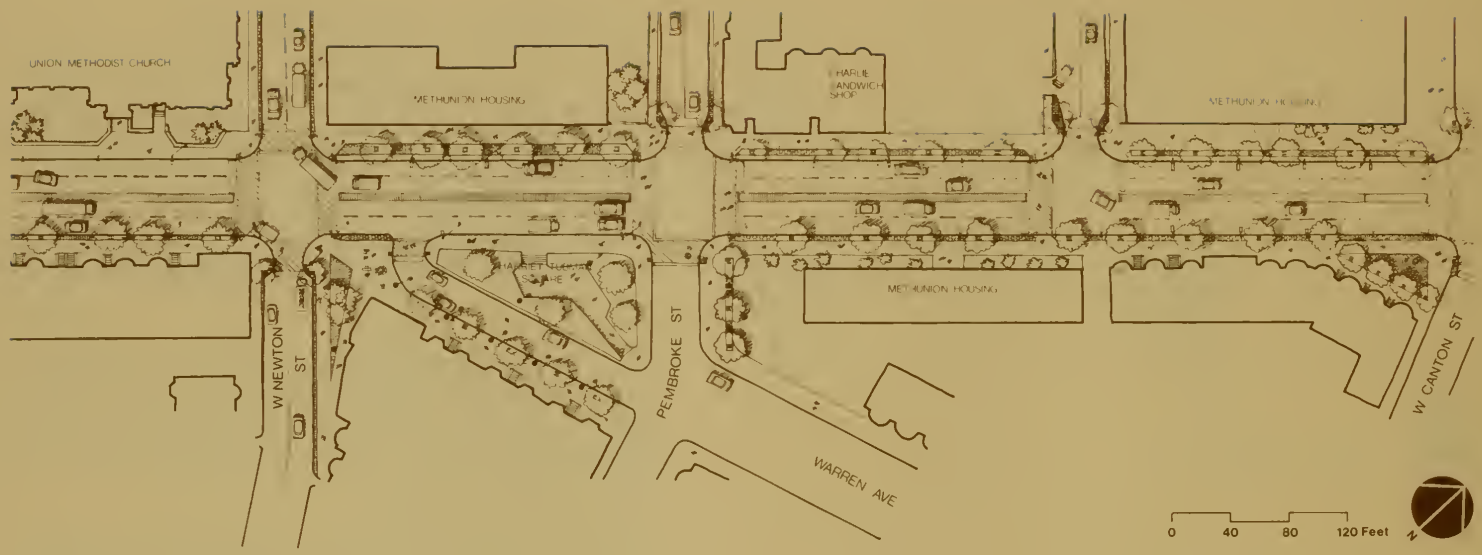

WORCESTER SQ
CLAREMONT PK
CONCORD SQ
GREENWICH PK
RUTLAND SQ
W. RUTLAND SQ
UNION METHODIST CHURCH
0
40
80
120 Feet
N

Worcester Square to Union Methodist Church

In the area of the parks and squares (Claremont Park — Worcester Square, Greenwich Park — Concord Square, West Rutland Square — Rutland Square), the roadway takes on an unbalanced alignment which favors the northerly side of the street with a wider sidewalk. This is achieved by shifting the standard roadway section to a 12-foot wide sidewalk on the southerly side yielding an 18-foot wide sidewalk on the northerly side.

The unbalanced section was incorporated into the design to favor what is for the most part the sunny side of the street as well as to give a sense of balance by offsetting the open space generated by the vest pocket parks which are on the southerly side of the street.

The 18-foot wide pedestrian way is particularly valuable in the vicinity of the Union Methodist Church where the additional area would be utilized to give this highlight of street scape the appearance of having a larger front yard area.

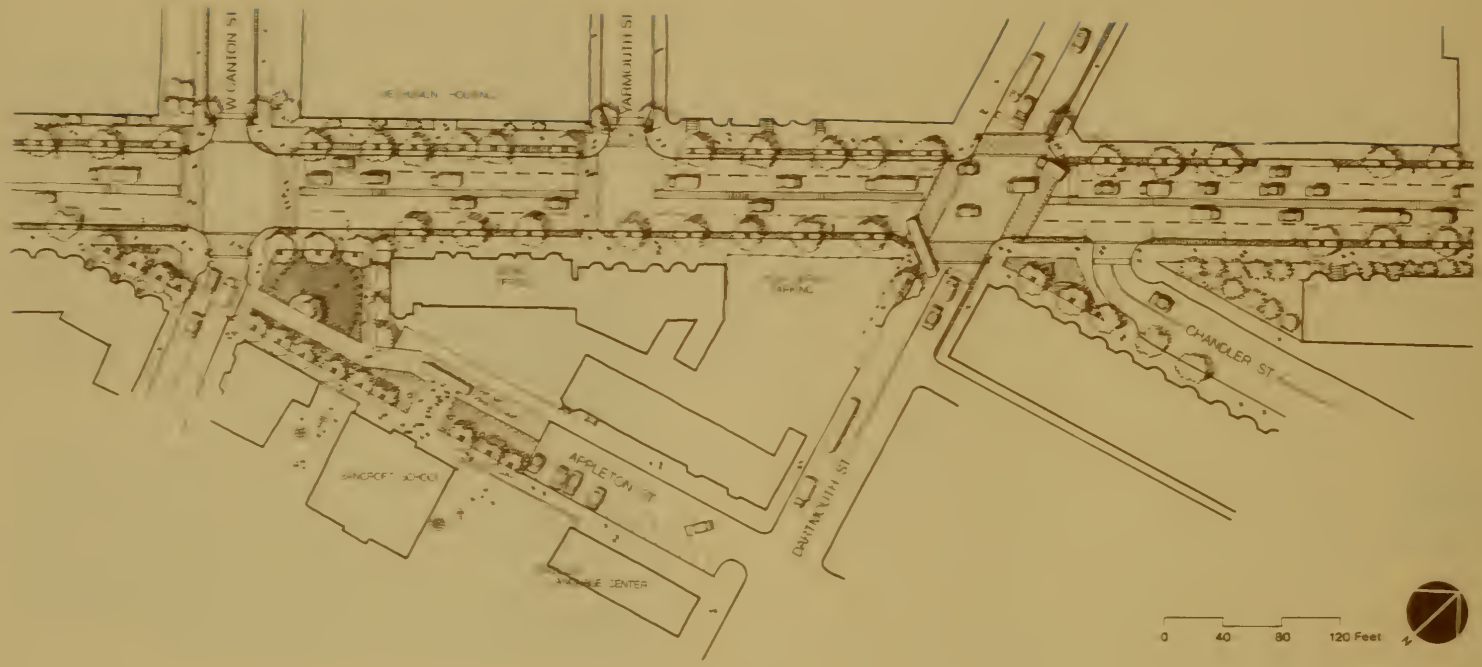

UNION METHODIST CHURCH
METHUNION HOUSING
HARLIE SANDWICH SHOP
METHUNION HOUSING
METHUNION HOUSING
W NEWTON ST
PEMBROKE ST
WARREN AVE
W CANTON ST
0 40 80 120 Feet
N

West Newton Steet to Holyoke Street

At the West Newton Street intersection, the design proposes that West Newton Street be one way from Tremont Street to Columbus Avenue and two way from Columbus Avenue to the Back Bay, as it is currently operating for a 60-day trial period.

On the southerly approach of West Newton Street, the easterly side of the roadway is narrowed by approximately eight feet to match the width of the northerly approach, thus creating an additional pedestrian plaza area to complement the recently construced Harriet Tubman Square.

As part of the revised circulation plan, Warren Avenue is proposed to be one way from Pembroke Street to Columbus Avenue with a left turn prohibition at the Columbus Avenue intersection, and one way from Pembrook Street to West Canton Street. In addition, Pembroke Street is proposed to be one way from Tremont Street to Warren Avenue and one way from Columbus Avenue to Warren Avenue.


W CANTON ST
YARMOUTH ST
CHANDLER ST
APPLETON ST
DARTMOUTH ST
0
40
80
120 Feet
N

West Canton Street/Appleton Street

The West Canton/Appleton Streets area is characterized by the mini park developed through the closing of Appleton Street to normal vehicular traffic and channelization of the West Canton Street intersection. The closing of Appleton Street will change the street environment in the vicinity of the Bancroft School to a pedestrian oriented space while at the same time providing vehicular access and parking for those residents on the street between Columbus Avenue and Dartmouth Street, via Dartmouth Street.

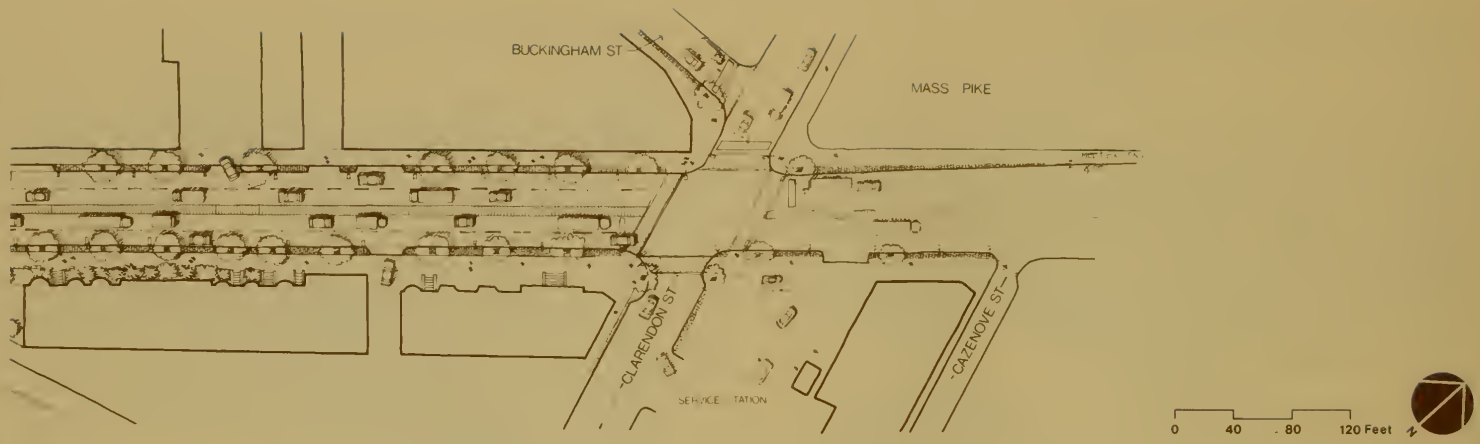
In conjunction with the proposed mini park and the channelization, this intersection is proposed to be signalized primarily to improve pedestrian safety as this intersection is identified as a primary crossing point for walkers to and from the school.

As an additional measure, it is proposed that the traffic flow direction on a portion of West Canton Street be reversed to be one way from Warren Avenue to Columbus Avenue. This direction change is of particular importance because it completes a rotary pattern thus allowing reasonable access for residents while discouraging cross town traffic through residential areas.

Dartmouth Street/Chandler Street

The Dartmouth/Chandler Streets intersection area is proposed to be channelized creating another mini park or pedestrian plaza. The Dartmouth Street signalization would be upgraded while the Chandler Street approach would allow right turns only on to Columbus Avenue northbound.

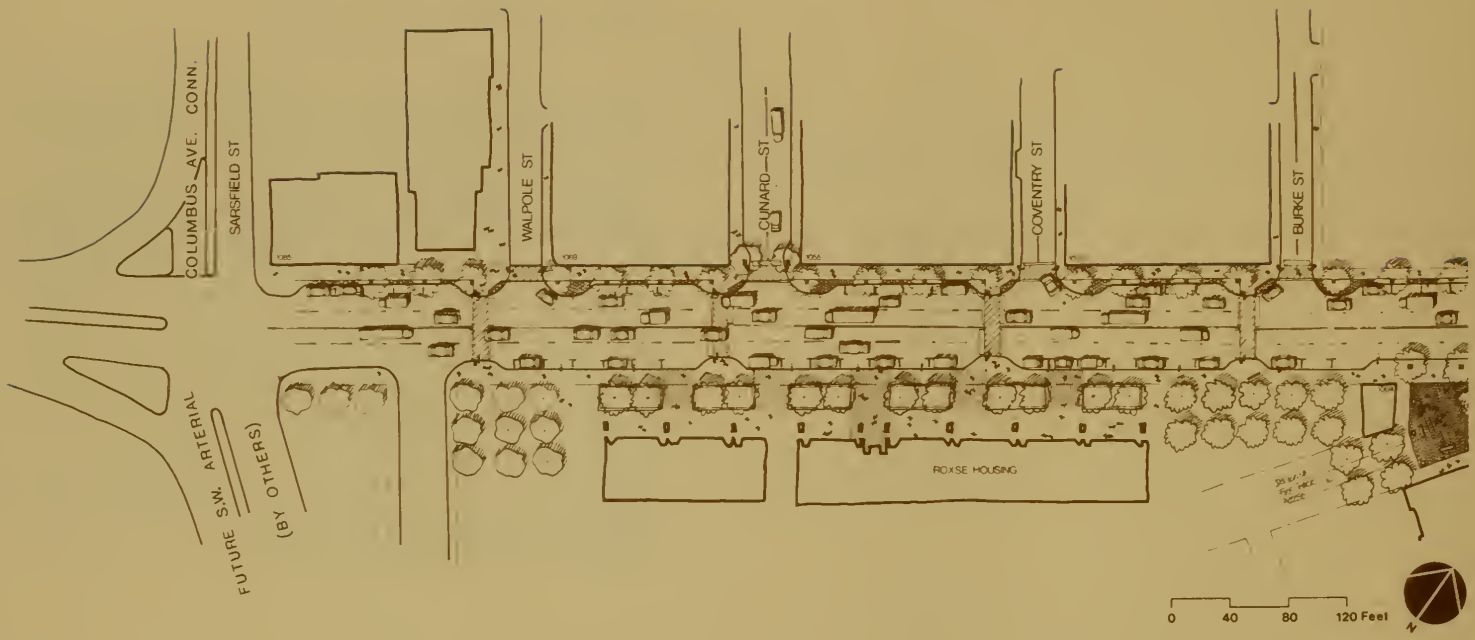
Dartmouth Street, because of its angular relationship to Columbus Avenue, would allow the neckdown device to be used in the northeasterly and southwesterly corners of Dartmouth Street. This device allows the curb to closely duplicate the path of the turning design vehicle while also prohibiting parking near the corner.


BUCKINGHAM ST
MASS PIKE
CLARENDON ST
CAZENOVE ST
SERVICE STATION
0
40
80
120 Feet

Clarendon Street/Buckingham Street

The Clarendon/Buckingham Streets intersection is proposed to have traffic flow modified in addition to being signalized and channelized.

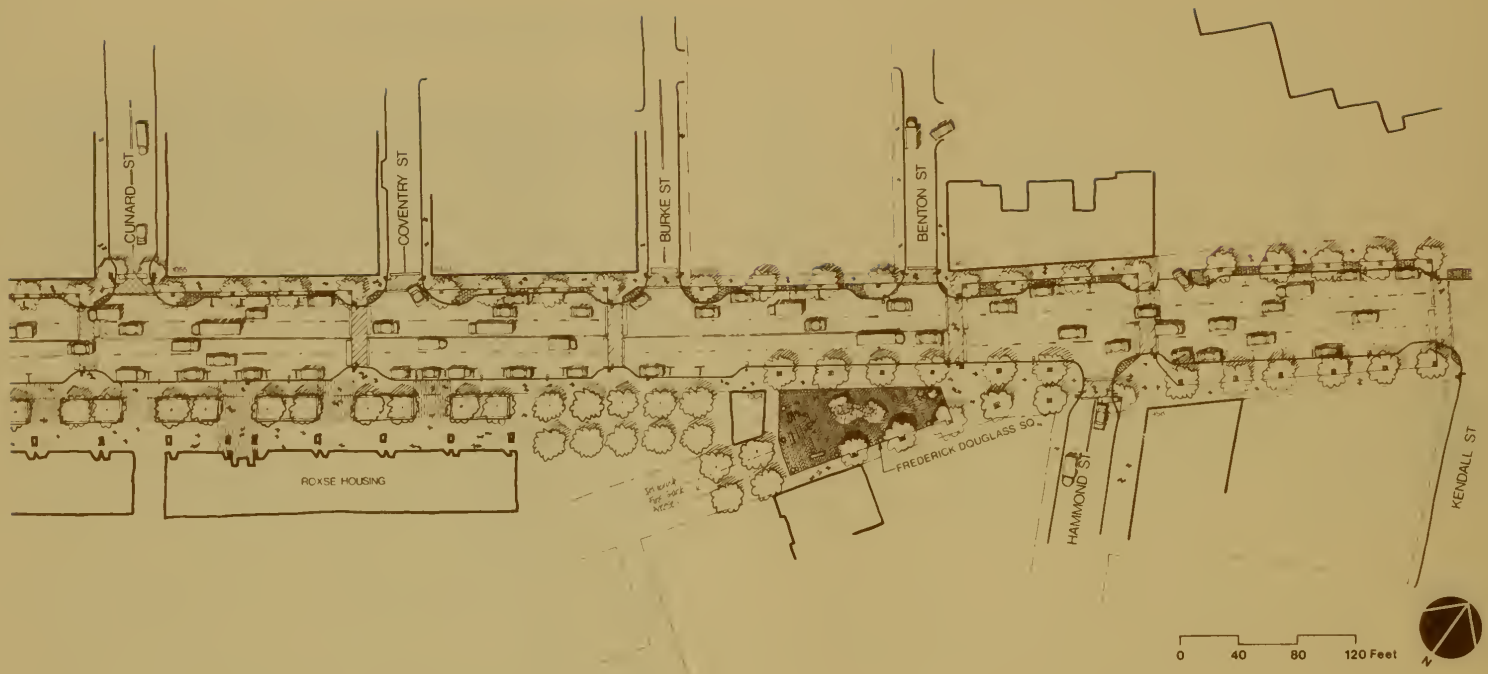
In order to simplify the movements and reduce potential conflicts at the intersection, Buckingham Street is proposed to be reversed in direction to become a one way street from Dartmouth Street to Clarendon Street. In addition, complementing the direction change, the proposed channelization aids to define the relationship of Buckingham Street to Clarendon Street requiring that traffic movement from Buckingham Street to Columbus Avenue be considered as two moves. This clarification of priority will be further reinforced by stop control on the Buckingham Street approach as well as signalization governing the movements at Clarendon Street and Columbus Avenue.


COLUMBUS AVE. CONN.
SARSFIELD ST
FUTURE S.W. ARTERIAL
(BY OTHERS)
WALPOLE ST
CUNARD ST
COVENTRY ST
BURKE ST
ROXSE HOUSING
0
40
80
120 Feet
N

TREMONT STREET HIGHLIGHTS

Sarsfield Street at Tremont Street

This intersection is being partially reconstructed to provide the two-way connecting roadway between Columbus Avenue and Tremont Street. (In the Southwest Development phase, the "new cross town" street and relocated Columbus Avenue will be built to complete the intersection.) The partial construction proposed in this report recommends full construction of the 50-foot connecting roadway between Columbus Avenue and Tremont Street. West of the intersection, a 60-foot pavement is provided which narrows to the 50-foot pavement proposed for the remainder of Columbus Avenue. This signalized intersection will accommodate a left turn lane and two through lanes on the eastbound approach, leaving adequate pavement for two lanes on the westbound approach. Until final reconstruction is accomplished and the required four lanes (two left turn and two through) are provided, the through southbound roadway will be barricaded and only the right turn into Tremont Street will be permitted. The volume density traffic signal controller proposed for this location will provide for a pedestrian actuated phase to insure safe pedestrian passage through the intersection.


CUNARD ST
COVENTRY ST
BURKE ST
BENTON ST
ROXSE HOUSING
FREDERICK DOUGLASS SQ.
HAMMOND ST
KENDALL ST
0
40
80
120 Feet
N

Frederick Douglass Square

Closing of the northerly end of Cabot Street at Tremont Street provides the area necessary for one of the several mini parks being provided in the South End Renewal Area. Construction of the park will provide esthetically pleasing walk areas, trees, plantings, park benches and other amenities conducive to relaxation in an urban atmosphere. This is in keeping with the urban open space programs recommended for urban residential areas.

Access to adjacent land uses for service and emergency vehicles is provided by maintaining part of Cabot Street as a service road.

Hammond Street, located at the easterly end of the proposed park, is one of the few local residential streets remaining as a two-way facility that is provided with neckdowns as its junction with Tremont Street. It is felt that provision of the neckdowns at this "T" intersection is acceptable for several reasons. Since the intersection is not signal controlled, a vehicle on Hammond Street can clear the intersection while a larger vehicle that would have to infringe on the existing lane stops momentarily till the approach lane is cleared. In addition, the low traffic volumes on Hammond Street minimize the probability of this situation occurring often enough to impede the smooth flow of traffic.

CARTER SCHOOL SITE
CAMDEN ST
CHICKERING PIANO FACTORY
NORTHAMPTON ST
SERVICE STATION
KENDALL ST
PEOPLES BAPTIST CHURCH
RELOC. LENOX ST.
0 40 80 120 Feet
N

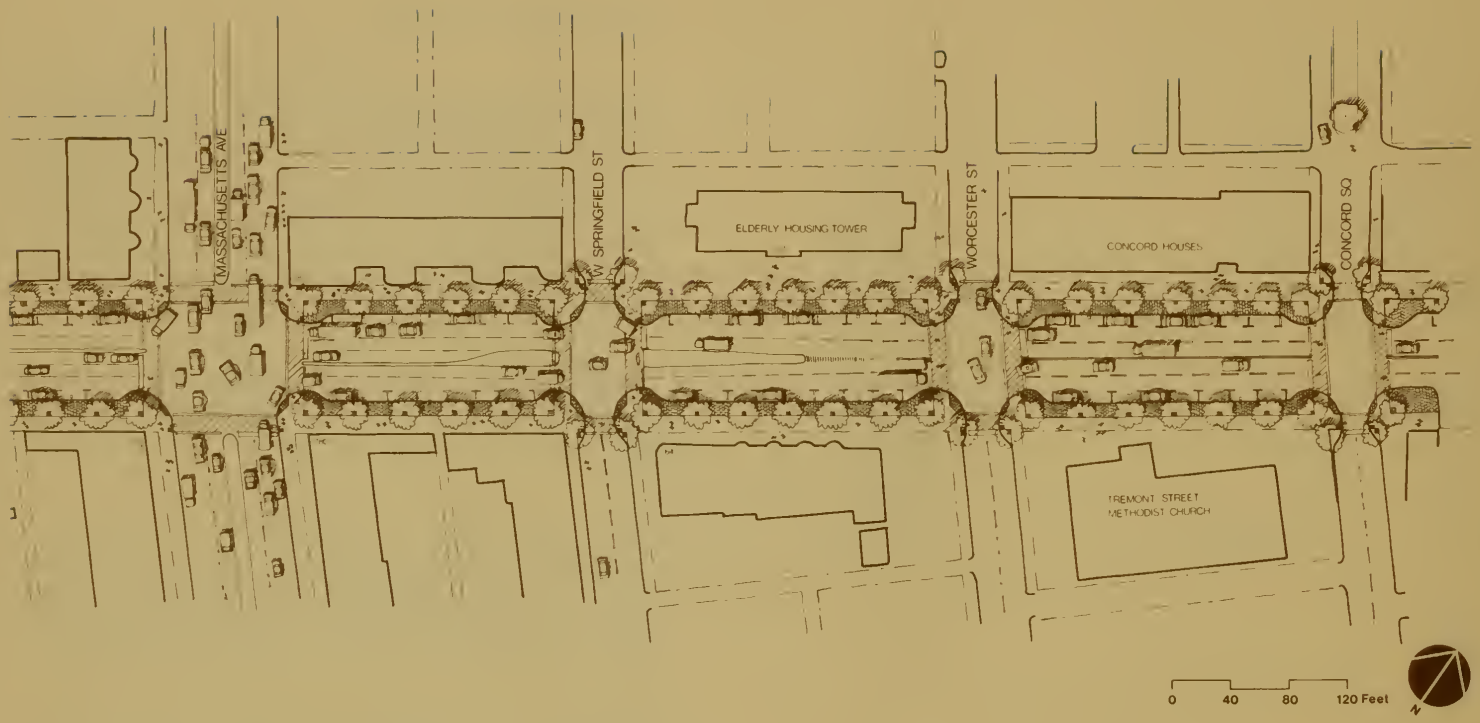
Kendall Street/Lenox Street

Lenox Street is proposed to be discontinued approximately 50 feet from Tremont Street and a new connecting roadway provided to Kendall Street. The short section of Kendall Street from the Lenox Street Extension to Tremont Street will accommodate two way traffic while the remainder of Kendall Street will be one way to Shawmut Avenue. Lenox Street is proposed to be one way from Shawmut Avenue to Kendall Street.

The Lenox Street Extension right-of-way will have to be obtained by land exchange with the Tremont Street development parcel between Kendall Street and Lenox Street.

The Tremont Street — Kendall Street intersection is scheduled for traffic signal control to provide safe pedestrian access for pupils destined for the new Carter School. Vechicle delay will be minimized by utilizing a full-actuated controller to assign green time as required by traffic volume demand.

Of particular significance is the Piano Craft Guild, a residential bohemian style studio complex, contained in the old Chickering Piano Factory. The esthetic qualities of this local historical structure are further enhanced by the special treatment proposed for the sidewalk in front of this building.

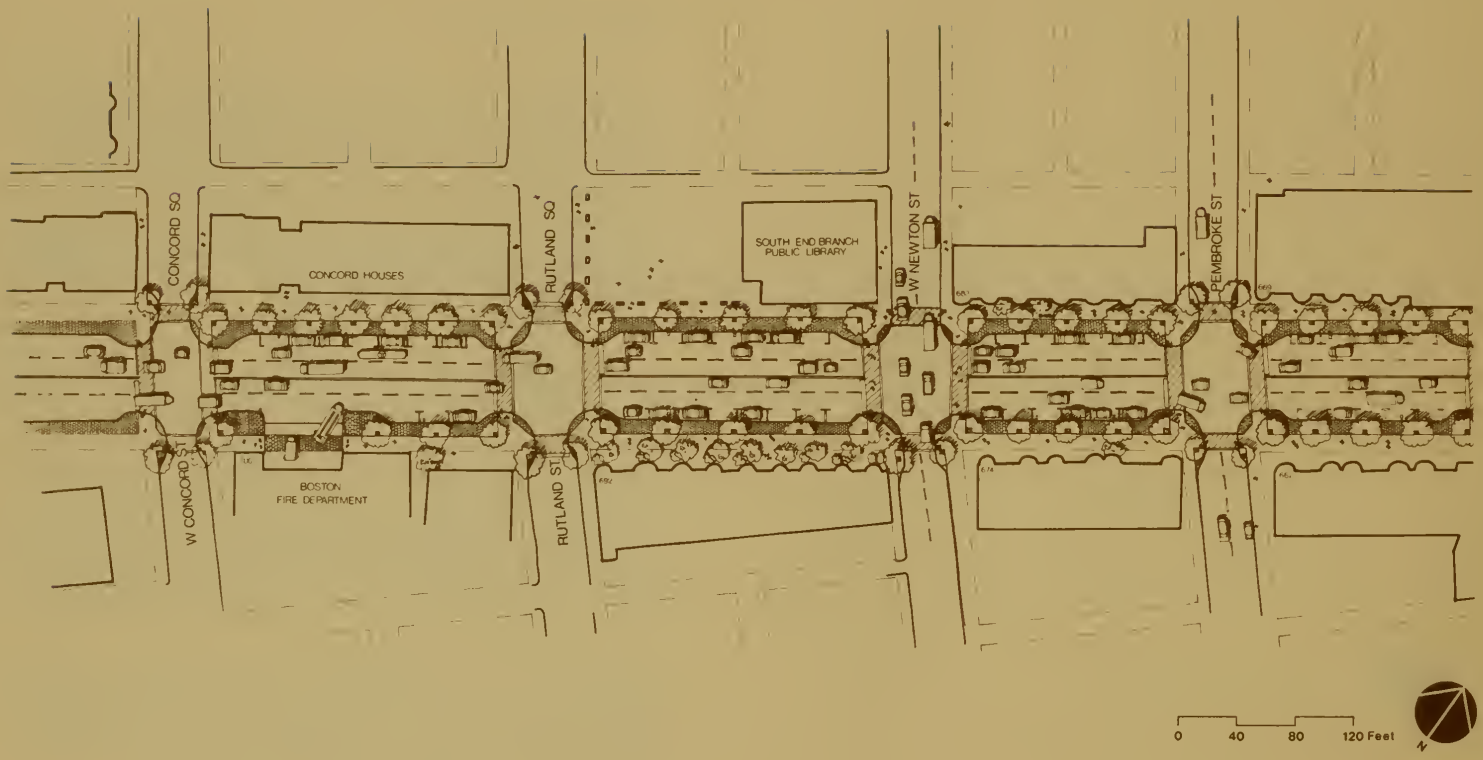

MASSACHUSETTS AVE
W SPRINGFIELD ST
ELDERLY HOUSING TOWER
WORCESTER ST
CONCORD HOUSES
CONCORD SQ
TREMONT STREET
METHODIST CHURCH
0
40
80
120 Feet
N

Massachusetts Avenue

Traffic wise, this is one of the most critical intersections in the South End area. This junction of two high-volume arterial facilities is designed to minimize the vehicle delay that effects traffic operations through all of the South End. The Massachusetts Avenue approaches, which were redesigned and rebuilt as a TOPICS early implementation project, provide a parking lane, two through lanes, and a left turn lane on each approach separated by a median dividing island.

Similar treatment is proposed on the Tremont Street approaches. The easterly side of the intersection is provided with a block long median island separating the directional flow, each of which has two through lanes and a parking lane. In addition, the median is used to protect and provide a left turn lane on the westbound approach. The westerly side has the same lane configuration with a block long median island separating opposing flows and protecting the left turn lane.

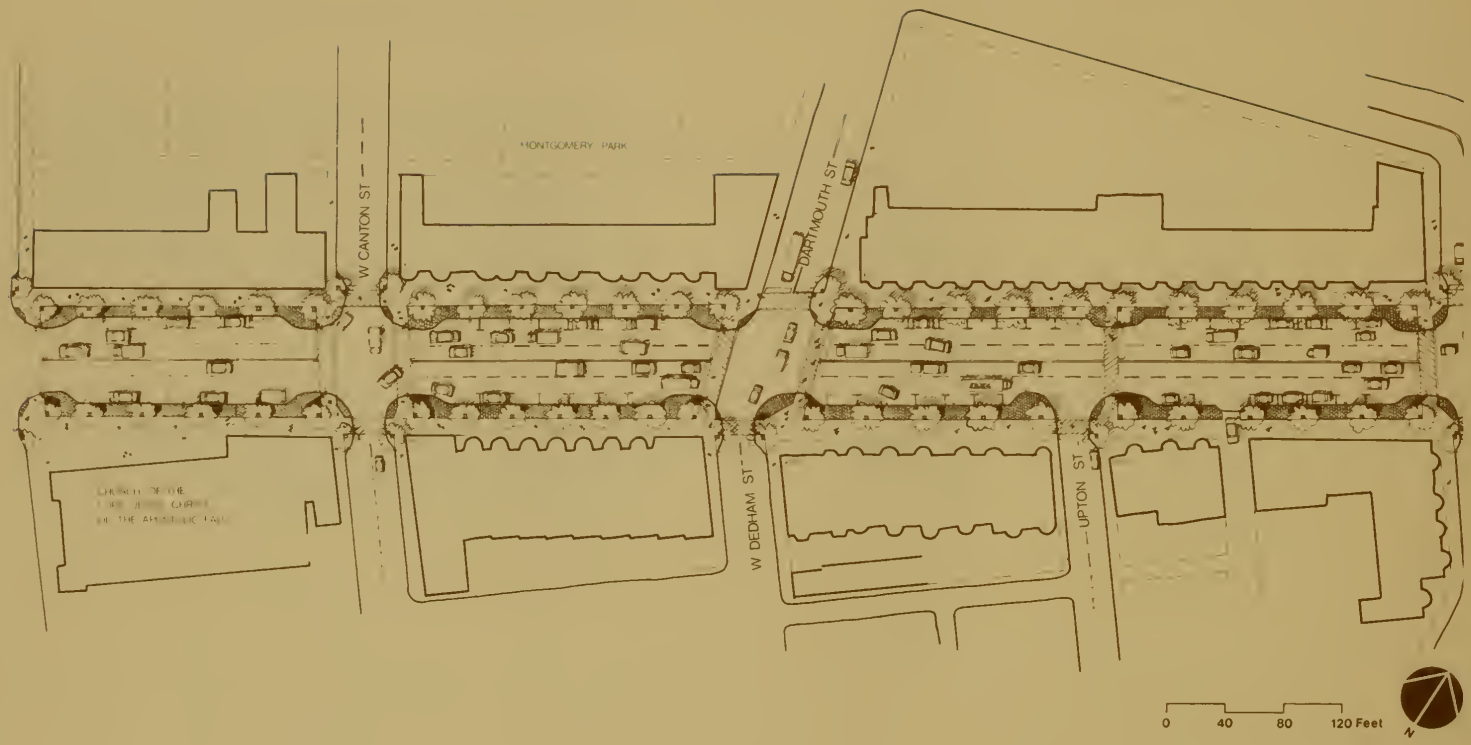
Neckdowns are not provided on the Tremont Street approaches, thus permitting the parking lane to be used as a traffic lane when peak hour volumes warrant such a change. Otherwise the sidewalk treatment at this intersection is consistent with the remainder of Tremont Street.


CONCORD SQ
CONCORD HOUSES
RUTLAND SQ
SOUTH END BRANCH
PUBLIC LIBRARY
W NEWTON ST
PEMBROKE ST
W CONCORD ST
BOSTON
FIRE DEPARTMENT
RUTLAND ST
0
40
80
120 Feet
N

Concord Square to West Brookline Street

This section of the street is proposed to have a number of side street traffic flow modifications. Concord Square would be one way from Tremont Street to Columbus Avenue. Rutland Square would be one way from Columbus Avenue to Tremont Street. West Newton Street is proposed to be one way from Tremont Street to Columbus Avenue and one way from Tremont Street to Shawmut Avenue, which are the directions currently undergoing a 60-day experimental period.

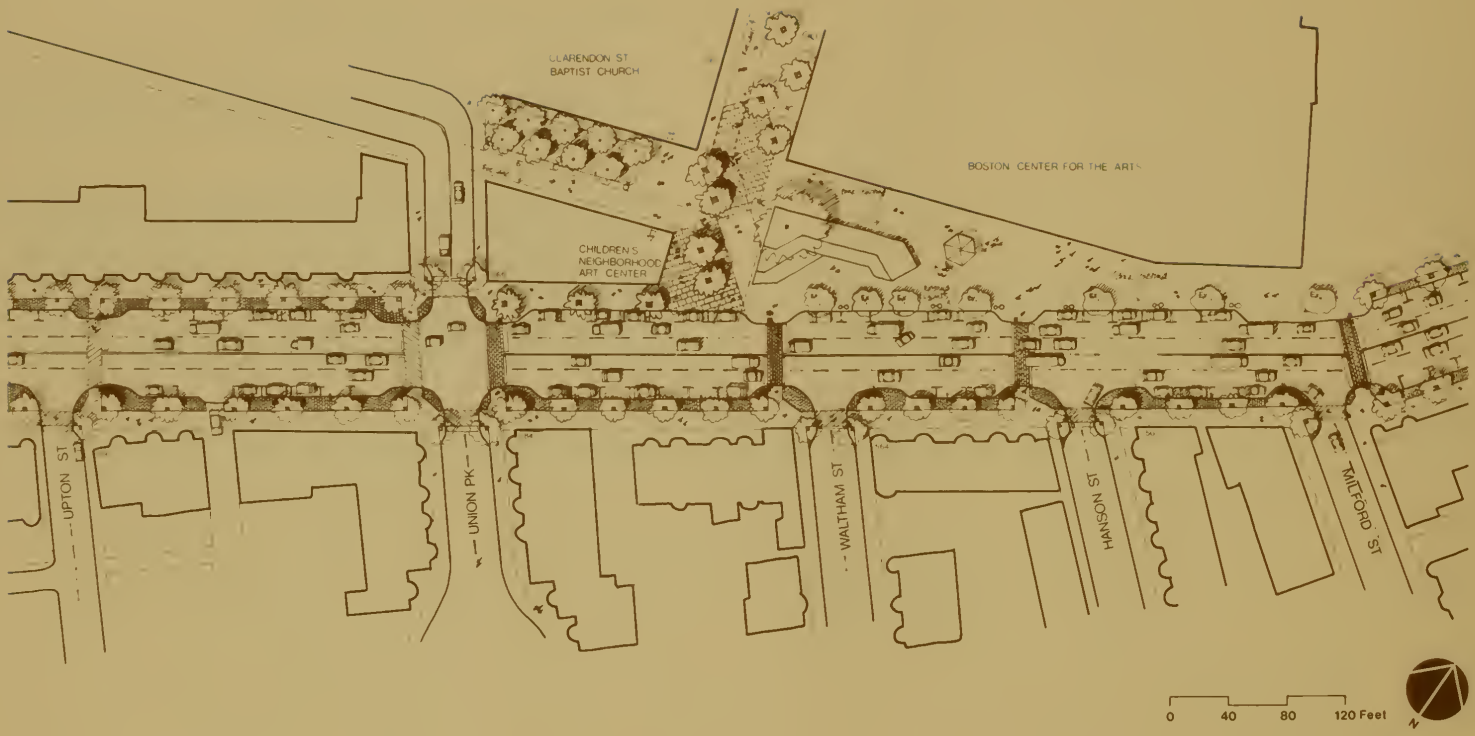
In the vicinity of the Boston Fire Department Station, the design will provide ease of access for the fire equipment while at the same time delineating the sidewalk to alert pedestrians to the nature of this portion of the sidewalk.


MONTGOMERY PARK
W CANTON ST
DARTMOUTH ST
W DEDHAM ST
UPTON ST
0 40 80 120 Feet
N

West Canton Street to Upton Street

Of particular importance in this section are the Dartmouth/W. Dedham Streets intersection and the West Canton Street discontinuance.

The proposed Dartmouth Street intersection would have improved signalization in conjunction with the traffic flow change making West Dedham Street one way from Shawmut Avenue to Tremont Street with the inclusion of a wrong way bus lane from Tremont Street to Shawmut Avenue, which is part of the current 60-day traffic flow experiment.

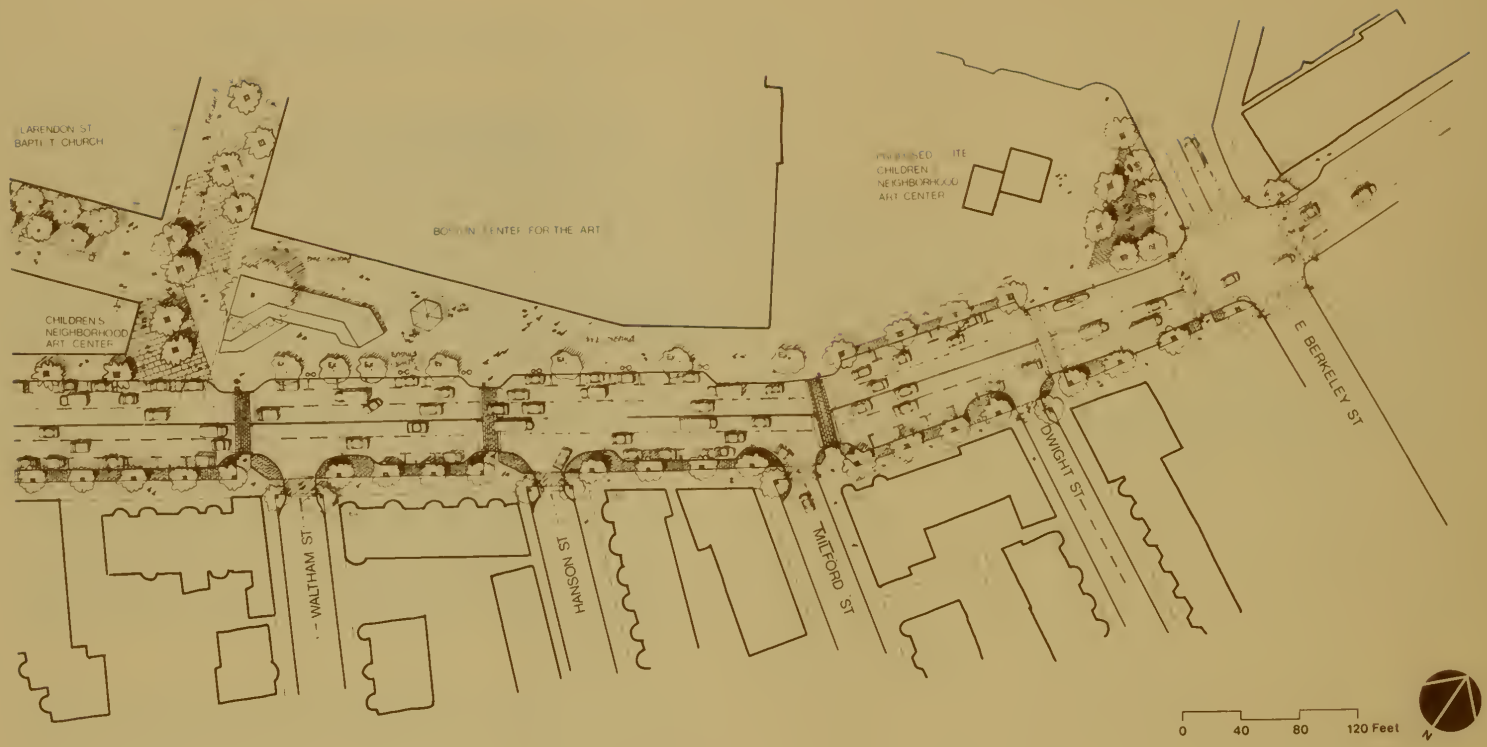

CLARENDON ST
BAPTIST CHURCH
BOSTON CENTER FOR THE ARTS
CHILDREN'S
NEIGHBORHOOD
ART CENTER
UPTON ST
UNION PK
WALTHAM ST
HANSON ST
MILFORD ST
0
40
80
120 Feet
N

Union Park, Waltham Street, Hanson Street

These three intersections are presently the major pedestrian crossing routes to the Boston Center for the Arts located on the northerly side of Tremont Street. The discontinuance of Clarendon Street from the alley 100 feet north of Montgomery Street to Tremont Street as well as the closing of Montgomery Street from Union Park to Clarendon Street will provide the pedestrian mall and access to the Center as envisioned in the Boston Redevelopment Authority Master Plan for the Area.

Vehicular flow on Union Park is one-way northbound. Signalization of this location will provide positive vehicle control and safe passage for predestrians. In conjunction with the Union Park signal installation, interconnected pedestrian signals are provided at Waltham Street. This location will provide the major pedestrian access from the south and should service the pedestrians from the Hanson Street intersection.

The mall adjacent to the Center for the Arts is given special treatment to enhance the esthetic qualities of the Center. The trees, planting areas, benches and other sidewalk amenities emphasized by the special brick mall treatment enchance and beautify the appearance of the whole area.


LARENDON ST
BAPTIST CHURCH
CHILDREN'S
NEIGHBORHOOD
ART CENTER
CHILDREN
NEIGHBORHOOD
ART CENTER
WALTHAM ST
HANSON ST
MILFORD ST
DWIGHT ST
E BERKELEY ST
0
40
80
120 Feet
N

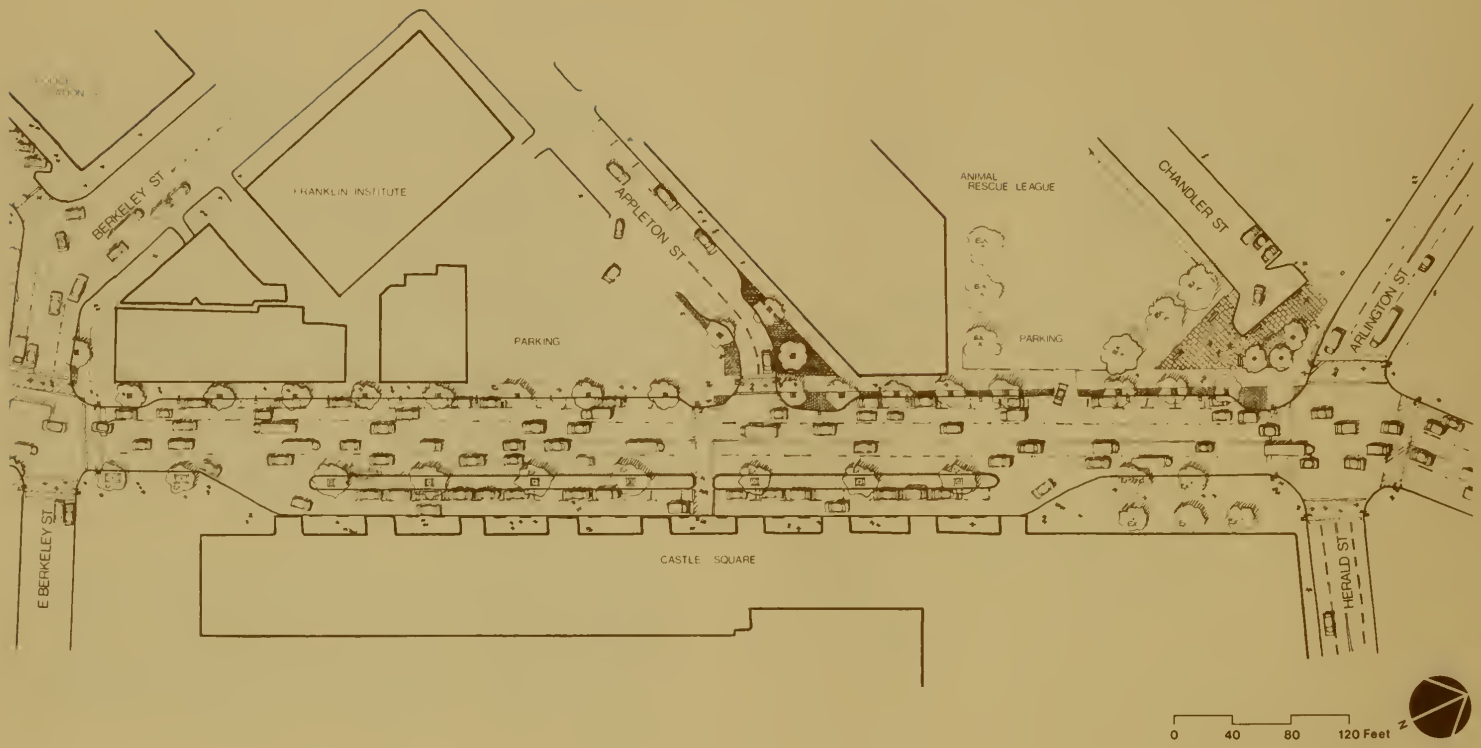
Berkeley Street

The existing wide open East Berkeley Street approach to this intersection is reconstructed to provide a 4 lane two-way roadway to Warren Avenue. The excess area is utilized to construct another mini park with trees, plantings, benches and other amenities to provide an atmosphere of relaxation in this urban area. The gateway to the Boston Center for the Arts is further enhanced by this park located at the east end of the Center complex. The site of the proposed Childrens Neighborhood Art Center is adjacent to and northwest of this park, thus providing an adjacent nature setting to be utilized in conjunction with that Center.

The traffic signal system proposed for this intersection will provide safe and efficient movement of vehicles and pedestrians through this area.

Parking is prohibited on the west side of Tremont Street to provide the four lanes required for moving traffic which further enhances the appearances of the mini park. Design of the East Berkeley Street approach will accommodate any future changes in traffic pattern that may be proposed for this area.

The design proposed for this area is compatable with the present design of Warren Avenue reconstruction, and it is anticipated that construction will start soon.


BERKELEY ST
FRANKLIN INSTITUTE
APPLETON ST
ANIMAL
RESCUE LEAGUE
CHANDLER ST
ARLINGTON ST
PARKING
PARKING
E BERKELEY ST
CASTLE SQUARE
HERALD ST
0
40
80
120 Feet
N

Berkeley Street to Arlington Street

Design of this area was predicated on compatability with the adjacent Castle Square development and provides an esthetic extension of that area. Traffic flow on Appleton Street is reversed to one way westbound from Tremont Street and redesign of the intersection provides neckdowns for the delineation of Appleton Street parking. In addition, the new alignment provides a large area for pedestrian usage as well as street amenities.

Chandler Street is discontinued at its junction with Arlington Street and a "hammerhead" type turn around is provided on Chandler Street. The area available from the closing is utilized to provide a brick mall with planters. The Massachusetts Turnpike Extension passing under this area precludes the installation of trees.

Removal of one approach to the Tremont Street — Arlington Street intersection will reduce the traffic demand at this location and permit a safer, more efficient operation.

4 PRELIMINARY ENGINEERING

TRAFFIC OPERATIONS

General

Traffic operations in the South End Area can probably be best described as being in a state of "disorganized chaos." Intersection congestion during the peak traffic periods, as well as double and triple parking along Tremont Street and Columbus Avenue throughout the day, discourages drivers from utilizing the street system through the area when alternates are available.

Area residents have complained that local residential streets are being used as by-pass routes during periods of congestion and have requested certain traffic pattern changes to discourage this practice. In addition, their concern with pedestrian safety as well as esthetic sidewalk amenities has brought forth several design requirements from the community. Pavement width will be minimized to that necessary to accommodate existing traffic volumes and provide curbside parallel parking. Pedestrian exposure to traffic is further reduced by neckdown intersection design desired by the community which provides additional sidewalk width for pedestrian protection as well as parking lane delineation.

Traffic Trends

City of Boston Cordon Count data for the year 1964, 1972 and 1974 were utilized to ascertain traffic trends in the South End Area and to compare them to the City of Boston trends. Several interesting and significant results were obtained in this analysis.

TABLE 1

VOLUME COMPARISONS

Time	Count Locations	1964 In	1964 Out	1972 In	1972 Out	1974 In	1974 Out	64–72 No.	64–72 %	72–74 No.	72–74 %	64–74 No.	64–74 %
6 a.m.	South End Streets	58505		51799		48584		6706	–11%	3215	– 6%	9921	–17%
to			64745		52161		49423	12584	–19%	2738	– 5%	15322	–24%
Midnight	All Cordon Streets	36260		421613		429726		58994	+16%	7663	+ 2%	66656	+18%
			361781		422528		429312	60747	+18%	6784	+ 2%	67531	+19%
7:30 to	South End Streets	6407		4311		4188		2096	–33%	123	– 3%	2219	–35%
8:30 a.m.			3196		2894		2666	302	– 9%	228	– 8%	530	–17%
Peak	All Cordon Streets	36132		36547		39237		415	+ 1%	2690	+ 7%	3105	+ 9%
			22260		24013		23557	1753	+ 8%	456	– 2%	1297	+ 6%
4:30 to	South End Streets	3998		3893		3864		105	– 3%	29	– 1%	134	– 3%
5:30 p.m.			5342		5028		5319	314	– 6%	291	+ 6%	23	– 0%
Peak	All Cordon Streets	24665		27811		27937		3152	+13%	120	+ 0%	3272	+13%
			39447		40278		42353	831	+ 2%	2075	+ 5%	2906	+ 7%

1. All traffic entering downtown Boston via all roads during the 18 hour study period increased 18 percent between 1964 and 1974 while traffic entering the South End Area from the south and west[1] shows a net decrease of 17 percent for the same period.

2. Total traffic leaving the downtown Boston area during the Cordon Count period shows an increase of 19 percent in the ten year period while the traffic leaving the South End decreased 24 percent.

3. Peak hour, peak direction Cordon Count traffic has remained static or increased slightly. The total morning inbound flow shows a nine percent increase for the ten year period while the inbound flow into the South End has decreased by 35 percent.

4. Evening peak hour, peak direction traffic shows a slight seven percent increase on the Cordon Count outbound flow while traffic exiting the South End to the south and west decreased by less than one-half of one percent during the same ten year period.

Although the peak hour, peak direction Cordon traffic volumes do show a slight increase, the added capacity is provided by the addition of the Massachusetts Turnpike Extension and Interstate Route 93 to the available traffic carrying facilities. South End evening peak hour, peak direction traffic has remained static as street capacity was reached many years ago and nothing has been done to increase the traffic carrying capabilities of those facilities. Based upon the above data, it appears that drivers tend to utilize facilities other than the South End streets when a choice is available. During evening peak hours all facilities are at capacity and no choice is available to the driving public.

[1] Via Massachusetts Avenue, Washington Street, Tremont Street and Columbus Avenue, also includes Shawmut Avenue, Harrison Avenue and Albany Street in the outbound direction.

TABLE 2

SIGNALIZED INTERSECTION OPERATION SUMMARY

INTERSECTION and LEG	Number of Lanes	OBSERVED DATA										COMPUTED DATA					
		Unused Early Green (Avg.)	Cars Waiting		Cars Left Over		Avg. Green Left Over	Avg. Thru and Right Turn	Avg. Left	Maximum Clearing	Phase Time	Average Headway	Hourly Volume	Headway at Maximum Use	Percent of Total Capacity	Load Factor	Level of Service
			Max.	Avg.	Max.	Avg.											
7:30 to 8:30 a.m. Peak																	
Mass. Ave. N.B.	2	0	15	11	15	9	0	19	1.5	26	36	3.5	926	2.8	79	1.0	E
Mass. Ave. S.B.	2	0	15	7	14	5	3	18	1.0	25	35	4.2	750	2.8	76	0.8	E
Columbus Ave. E.B.	2	0	20+	15	20+	8	0	20	4.0	32	34	2.8	1093	2.1	75	1.0	E
Columbus Ave. W.B.	2	0	16	8	10	1.5	12	9	1.5	16	31	5.9	473	3.9	66	0.4	D
4:30 to 5:30 a.m. Peak																	
Mass. Ave. N.B.	2	0	16	9	11	6	0	16	1.0	29	39	4.6	763	2.7	59	1.0	E
Mass. Ave. S.B.	2	0	20+	20+	20+	20+	0	19	1.5	28	39	3.8	924	2.8	73	1.0	E
Columbus Ave. E.B.	2	0	20	13	14	5	2	14	4.5	24	34	3.7	827	2.8	77	0.8	E
Columbus Ave. W.B.	2	0	20+	20+	20+	15	0	19	1.0	26	30	3.0	900	2.3	77	1.0	E
7:30 to 8:30 a.m. Peak																	
Mass. Ave. N.B.	2	0	20+	9	6	3	0	21	3.0	34	44	3.7	1070	2.6	71	1.0	E
Mass. Ave. S.B.	2	0	8	4	8	4	2.5	13	1.3	23	40	5.6	643	3.5	62	0.8	E
Tremont St. E.B.	2	0	20+	18	20+	18	0	12	0.6	15	24	3.8	568	3.2	84	1.0	E
Tremont St. W.B.	2	0	8	4	4	0.5	8	4	0.5	9	24	10.7	202	5.3	50	0.2	C
4:30 to 5:30 p.m. Peak																	
Mass. Ave. N.B.	2	0	20+	10	9	4	1.5	19	4.0	28	40	3.5	1028	2.9	82	0.8	E
Mass. Ave. S.B.	2	0	12	9	14	8	0	15	1.0	28	40	5.0	720	2.9	57	1.0	E
Tremont St. E.B.	2	0	20	14	14	9	0	9	1.3	12	25	4.9	459	4.2	86	1.0	E
Tremont St. W.B.	2	0	20+	16	20+	13	0	10	1.4	15	25	4.4	511	3.3	76	0.9	E

Traffic Capacities

Field observations have revealed the critical intersections in the South End to be Massachusetts Avenue at Columbus Avenue and Massachusetts Avenue at Tremont Street. During the peak traffic periods, all congestion appears to emanate from these two intersections. Capacity analysis of these locations, based on traffic volumes, showed a Level of Service of B-C or C-D at each intersection. Field observations contradicted the volume capacity analysis; therefore, an operational analysis was designed to further evaluate intersectional Levels of Service. The following operating characteristics were measured for each intersectional approach during the peak traffic periods:

1. Length of signal cycle in operation.

2. Length of green time available to each approach.

3. Number of vehicles waiting on each approach before the start of green for that approach.

4. Number of cars in each movement passing through from each approach for each phase.

5. Number of cars remaining on each approach after the end of green for that approach.

6. Amount of green time not utilized after passage of last vehicle on that approach.

7. Lane stoppages for turning movements from each approach.

8. Number of operating lanes for each approach.

From the above data, the following operating statistics were developed:

1. Average headway (nose to nose time in seconds for consecutive vehicles to pass into the intersection).

2. Peak hour volume for each approach.

3. Minimum headway (nose to nose vehicle time during observed maximum volume phase).

4. Volume/capacity ratio (relationship of actual hourly volume to theoretical capacity of approach).

5. Load factor (relationship of fully utilized phases to number of phases available in peak hour).

6. Level of Service (measure of operating conditions at which approach is functioning).

Table 2 is a tabular summary of the observed and computed operating characteristics for the critical intersections during the peak operating periods. Analysis results verify the observed conditions in that both locations were found to be operating at an "E" Level of Service during the morning and evening peak periods.

Further analysis of these intersections revealed the need for widened approaches to Massachusetts Avenue on Columbus Avenue and Tremont Street. The widenings are necessary to provide a left turn lane on each approach. Columbus Avenue at Massachusetts Avenue is proposed to be 56 feet curb to curb on each roadway. This will permit opposing left turn lanes to be added to the two through lanes on each approach. No parking will be allowed on the approaches. Tremont Street is scheduled for a 72 foot curb to curb pavement width at the Massachusetts Avenue intersection. This will allow the same lane configurations as Columbus Avenue with the addition of a parking lane at each curbside.

Although analysis results predict a "C" Level of Service operation at these intersections, it is not unreasonable to assume this level cannot be attained at all times. If congestion does occur, its duration should be greatly reduced by the proposed lane configuration. It is mandatory that all proposed parking regulations be strictly enforced to insure that operations at a "C" Level of Service be attained. When necessary, the parking lane on the Tremont Street approaches could be eliminated to provide an additional lane.

Capacity analysis of the other high volume cross streets along Tremont Street and Columbus Avenue did not reveal any locations that would not accommodate the existing traffic volumes at a "C" Level of Service. Need for signalizing some locations was revealed and is dealt with in a latter section.

Traffic Circulation

Changes in the traffic circulation pattern have been requested by the local SEPAC/SECOT representatives. The City of Boston, under their emergency authority, has changed direction flow and usage on several local streets for a 60 day experimental operation. Shawmut Avenue was made one-way from Massachusetts Avenue to Berkeley Street, West Dedham Street was reversed to flow from Shawmut Avenue to Tremont Street, West Newton Street one-way flow is changed to go from Tremont Street to Shawmut Avenue and the two-way section between Tremont Street and Columbus Avenue was made one-way from Tremont Street to Columbus Avenue. If this experimental pattern proves viable and provides the traffic service needed to move traffic through the area while discouraging the through traffic, and is made permanent, the existing signal at Tremont Street and West Newton Street may prove to be unnecessary for traffic control.

In addition to the experimental changes now in effect, the following traffic flow changes have been incorporated into the design to develope an overall circulation plan to discourage the use of minor interior streets by through traffic.

To be one way northwest bound:

Street	Limits
Lenox St.	Shawmut Ave. to Kendall St. Connector
Northampton St.	Tremont St. to Columbus Ave.

Braddock Pk.	Columbus Ave. to Carleton St.
Concord Sq.	Tremont St. to Columbus Ave.
Pembroke St.	Tremont St. to Warren Ave.
West Canton St.	Warren Ave. to Columbus Ave.
Union Pk.	Tremont St. to Montgomery St.

To be one way southeast bound:

Wellington St.	Claremont St. to Columbus Ave.
Camden St.	Columbus Ave. to Shawmut Ave.
Greenwich Pk.	Claremont St. to Columbus Ave.
Rutland Sq.	Columbus Ave. to Tremont St.
Kendall St.	Lenox St. Connector to Shawmut Ave.
Pembroke St.	Columbus Ave to Warren Ave.

To be one way westbound:

Appleton St.	Tremont St. to Berkeley St.
Warren Ave.	Pembroke St. to Columbus Ave.
Montgomery St.	Union Pk. to West Canton St.

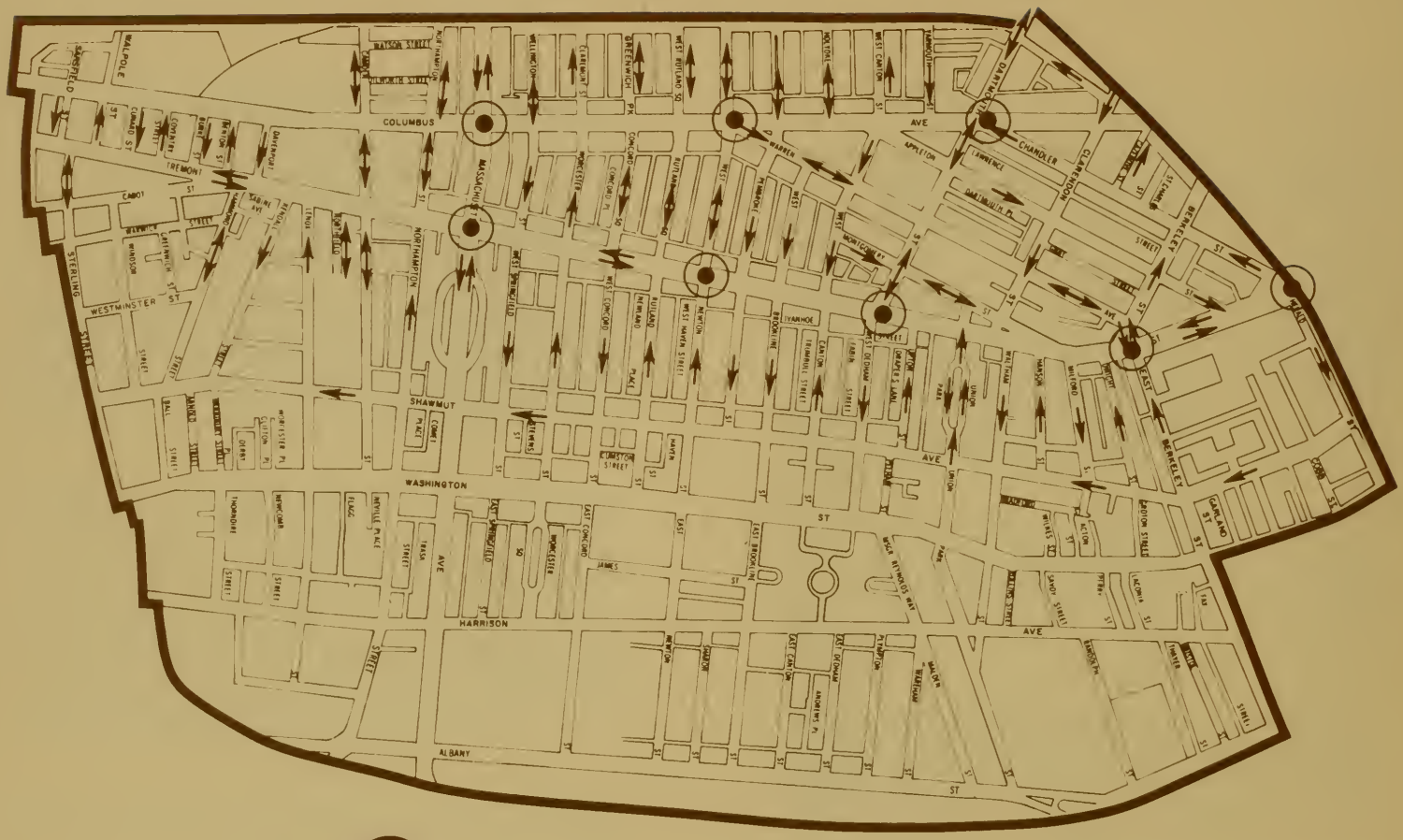
Buckingham St. is proposed to be one way eastbound from Dartmouth St. to Clarendon St.

In conjunction with the above traffic circulation pattern changes, several street sections have been discontinued to eliminate traffic circulation problems and/or provide better pedestrian movement and protection. The following street sections have been discontinued:

Street	Limits
Lenox St.	Tremont St. south to new connector
Davenport St.	Columbus Ave. to Tremont St.[2]
Camden St.	Columbus Ave to the railroad[2]
Clarendon St.	Alley south of Warren Ave. to Tremont St.
Appleton St.	Columbus Ave. to easterly limit of Bancroft School
Montgomery St.	From Union Pk. to Clarendon St.
Chandler St.	At the Arlington Sq. intersection

The circulation changes and street closings will insure local street accessibility while simultaneously reducing the advantages of utilizing the local streets as bypass routes through the South End.

[2]Discontinuance by others under proposed Carter School site development.


COLUMBUS
AVE
WASHINGTON
ST
HARRISON
AVE
ALBANY
ST
WESTMINSTER ST
TREMONT
STERLING
STREET
SHAWMUT
NORTHAMPTON
MASSACHUSETTS
WARREN
CHANDLER
CLARENDON
BERKELEY
DARTMOUTH
GARLAND ST
WALTHAM
WALPOLE
CABOT
WARWICK
WINDSOR
CLARENDON
WEST NEWTON
WEST BROOKLINE
WEST CONCORD
WEST SPRINGFIELD
WEST MONTGOMERY
WEST CANTON
WEST DEDHAM
WEST BROOKLINE
EAST CONCORD
EAST SPRINGFIELD
EAST BROOKLINE
EAST CANTON
EAST DEDHAM
EAST NEWTON
EAST WALTHAM
EAST BERKELEY
EAST ALBANY
EAST HARRISON
EAST WASHINGTON
EAST COLUMBUS
EAST TREMONT
EAST STERLING
EAST WESTMINSTER
EAST DARTMOUTH
EAST GARLAND
EAST WARWICK
EAST WINDSOR
EAST CLARENDON
EAST WALPOLE
EAST CABOT
EAST SHAWMUT
EAST NORTHAMPTON
EAST MASSACHUSETTS
EAST WARREN
EAST CHANDLER
EAST CLARENDON
EAST BERKELEY
EAST GARLAND
EAST WALTHAM

Traffic Signals

Analysis of the South End traffic flow verified the need for all existing signals, as mentioned previously, the Tremont Street — West Newton Street signals could be eliminated if the temporary traffic pattern is adopted. Because of the proposed street reconstruction, all locations except the Massachusetts Avenue intersection will require redesign to conform to National Standards.[3]

Table 3 is a listing of intersection locations recommended for signalization by the SEPAC/SECOT Steering Committees, intersections qualifying for signal control as evidenced by the various analyses performed by the consultant and intersections presently under traffic signal control. The table lists the intersection locations, the signal warrant requirements and the 8th highest hour vehicle and pedestrian volumes observed at that location. The table notes which warrant must be satisfied and whether that warrant is met. In addition, reconstruction or installation of traffic signals where necessary is noted.

Not shown on the table is the research into traffic accident data for those locations not satisfying other warrants. Registry of Motor Vehicle accident data did not reveal any proposed traffic signal location that could come close to satisfying the accident warrant.

[3]Manual on Uniform Traffic Control Devices, U.S.D.O.T., F.H.W.A. 1971, Part IV.

TABLE 3
INTERSECTION ANALYSIS FOR TRAFFIC SIGNAL JUSTIFICATION

LOCATION	Status*	Warrant 1 Major/Minor	Warrant 2 Major/Minor	Warrant 3 Traffic/Ped.	8th High Hour War./Comp. Vol.	Warrant Satisfied	Signal Add/Rev.
Tremont St. @							
Relocated Columbus Ave.	P	600/200	900/100	600/150	1 900/500	Yes	Yes
Burke St.	P	600/150	900/75	600/150	3 680/30	No	No
Kendall St.	P	600/150	900/75	600/150	4 School	Yes	Yes
Mass. Ave.	E	600/200	900/100	600/150	1 1000/300	Yes	No
Worcester St.	P	600/150	900/75	600/150	1/3 680/70/40	No	No
W. Newton St.	E	600/150	900/75	600/150	1 690/220	Yes	Yes
W. Brookline St.	P	600/150	900/75	600/150	1/3 730/70/50	No	No
Dartmouth & W. Dedham St.	E	600/150	900/75	600/150	1 730/160	Yes	Yes
Union Park	P	600/150	900/75	600/150	1/3 650/125/83	80% of 1 & 2	Yes
Waltham St. (Clarendon St.)	P	600/150	900/75	600/150	3 650/0/76**	Yes-Combined ped for cross	Yes
Hanson St.	P	600/150	900/75	600/150	1/3 650/50/68**	No	No
E. Berkeley	E	600/200	900/100	600/150	1 750/590	Yes	Yes
Columbus Ave. @							
Mass. Ave.	E	600/200	900/100	600/150	1 1000/400	Yes	No
Worcester St.	P	600/150	900/75	600/150	1/3 910/40/30	No	No
W. Newton St.	E	600/150	900/75	600/150	1 1200/200	Yes	Yes
W. Canton St.	P	600/150	900/75	600/150	4 850/(100)/30	Yes (School)	Yes
Dartmouth St.	E	600/150	900/75	600/150	1 800/200/–	Yes	Yes
Clarendon St.	P	600/150	900/75	600/150	1 800/260/–	Yes	Yes

*P—Proposed
E—Existing
**Pedestrian to be combined to Waltham Street. No pedestrian crossing at Hanson Street.

Capacity analysis and warrant verification disclosed six locations that satisfied the warrants and, because of proposed vehicle and pedestrian circulation patterns, should be signalized.

Two locations are on school access routes utilized by pupils and which are now or in the future will be controlled by school crossing guards. One is the Tremont Street – Kendall Street intersection which is on the access route to the Carter School from the south. The second location is at the Columbus Avenue and West Canton Street intersection which is in the walking route to the Bancroft School. In addition, two locations satisfy the volume warrant and require signal control to operate in a safe and efficient manner. The new intersection to be created by relocating Columbus Avenue to Tremont Street will definitely require positive control because of the large volume and heavy conflicts between westbound Tremont Street traffic and traffic destined for Columbus Avenue. The Clarendon Street – Buckingham Street intersection with Columbus Avenue more than satisfies the volume warrant and because of the proposed traffic pattern changes and its location at the edge of the South End Project Area is recommended for singal control.

Location of the Center for the Performing Arts at the Waltham Street, Hanson Street, Union Park intersections with Tremont Street is generating considerable pedestrian traffic through the area. More positive delineation and location of a more direct pedestrian crossing at Waltham Street will provide safe pedestrian access to the Center. Design of the traffic control signals at this location can effectively include partial preference for westbound vehicles turning left into Waltham Street.

Although the existing Union Park intersection volumes are slightly under the 80 percent volumes necessary to satisfy the warrant combination requirements, the expected increase in vehicular and pedestrian volumes will require signal control. It is recommended this location be signalized at this time to insure efficient operation along Tremont Street in conjunction with the proposed pedestrian crossing at Waltham Street. Efficient progressive movement can be guaranteed along Tremont Street while conflicting pedestrians and vehicles can be accommodated safely and efficiently.

0 400 800 1200 Feet

N

Signalized Intersection

Traffic Flow Direction

Currently On Trial Basis

Discontinued Street

Proposed Traffic Flow and Signalization

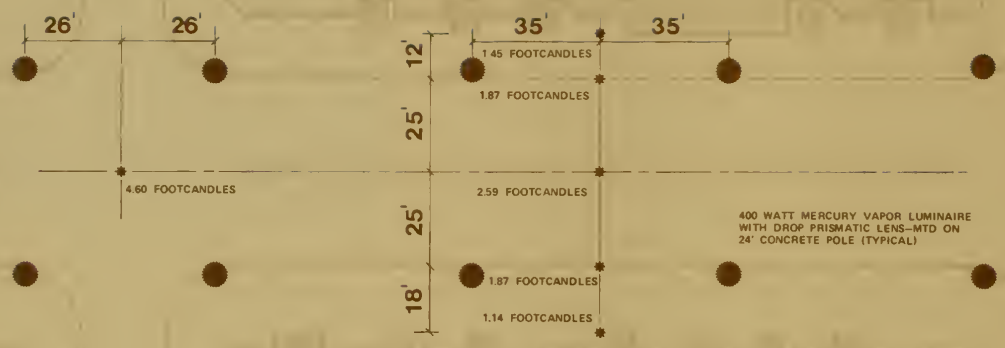
Parking

Traffic movement efficiency is often impaired by parking maneuvers infringing on adjacent moving traffic lanes. Any proposal that can reduce parking maneuver time will drecrease the duration of that side friction and thus maintain traffic movement at a more efficient level.

One way of reducing side friction created by parking maneuvers is to reduce the parking maneuver time required to get a vehicle out of the traffic lane into the parking lane. One method that has proven successful in reducing maneuver time by 35 to 50 percent is the so-called "tandem" or "paired parking" system. The 22 feet of curb space normally allocated to a parking stall is divided into a four foot maneuver area and an 18 foot parking area. Thus each adjacent pair of stalls is composed of two 18 foot parking areas separated by an eight foot "no parking" maneuver area with the next such pair starting against the bumper of the vehicle in the adjacent pair. Not only does this method provide an eight foot maneuver distance next to each 18 foot stall (26 feet of length available to each parking vehicle) but by utilizing dual head parking meters, the number of parking meter posts installed in the sidewalk area is reduced 50 percent. This method of parking increases parking efficiency and enhances sidewalk esthetics by the reduction of parking meter posts required.

DRAINAGE

Investigations into the required work needed to properly drain surface runoff from these two streets indicate that the existing systems with respect to drainage capacity and pipe sizing will be adequate or remedied by other site development contracts underway or proposed by the BRA. As a result, it is anticipated that the drainage work to be done will primarily involve modification of the point of entrance to the system by adjusting, abandoning, changing type, or constructing new drainage structures such as manholes and catch basins. It is also envisioned that some new drainage pipe will be required since the proposed neckdowns will require a change in some curb inlet locations.



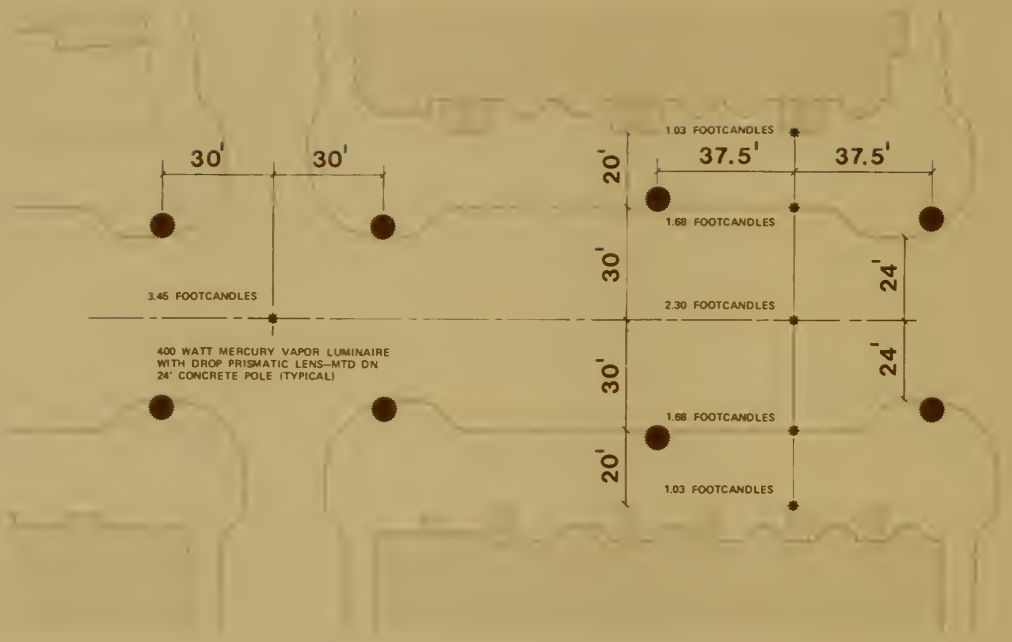
Columbus Avenue Lighting

LIGHTING

Development of the Preliminary Lighting Design for these two urban streets involved considerations not only of adequate roadway illumination but also comfortable sidewalk light intensities for nighttime uses, while at the same time not allowing excess light spillage into residences that front on the streets. In order to achieve these objectives, particular attention was given to luminaire height and spacing in conjunction with the pattern and intensity of light distribution.

Columbus Avenue

At this stage of the design, it is anticipated that Columbus Avenue will utilize a 400 watt mercury vapor luminaire with drop prismatic lenses mounted on a 24 foot concrete pole. These fixtures would be installed as opposing pairs spaced 70 feet apart along the roadway at mid-block and at 52 foot centers longitudinally across the intersections. The resulting light intensity levels in footcandles on the pavement midway between fixtures are: 1.45 at the back of the 12 foot sidewalks, 1.14 at the back of the 18 foot sidewalks, 2.59 at the centerline of the roadway (mid-block), 1.87 at the edge of the roadway (mid-block), and 4.6 at the center of the intersections.



Tremont Street Lighting

Tremont Street

The preliminary design of this street incorporates the same fixture as used on Columbus Avenue (400 watt mercury vapor lamp with drop prismatic lense). These luminaires would similarly be installed on 24 foot concrete poles; however, due to differences in roadway configuration, these poles would be located in opposite pairs spaced in intervals of 75 feet at mid-block and 60 feet across intersections along the roadway. The resulting light intensity levels on the pavement midway between fixtures measured in footcandles are: 1.03 at the back of the sidewalk, 2.3 at the centerline of the roadway (mid-block), 1.68 at the edge of the roadway (mid-block), and 3.45 at the center of the intersections.

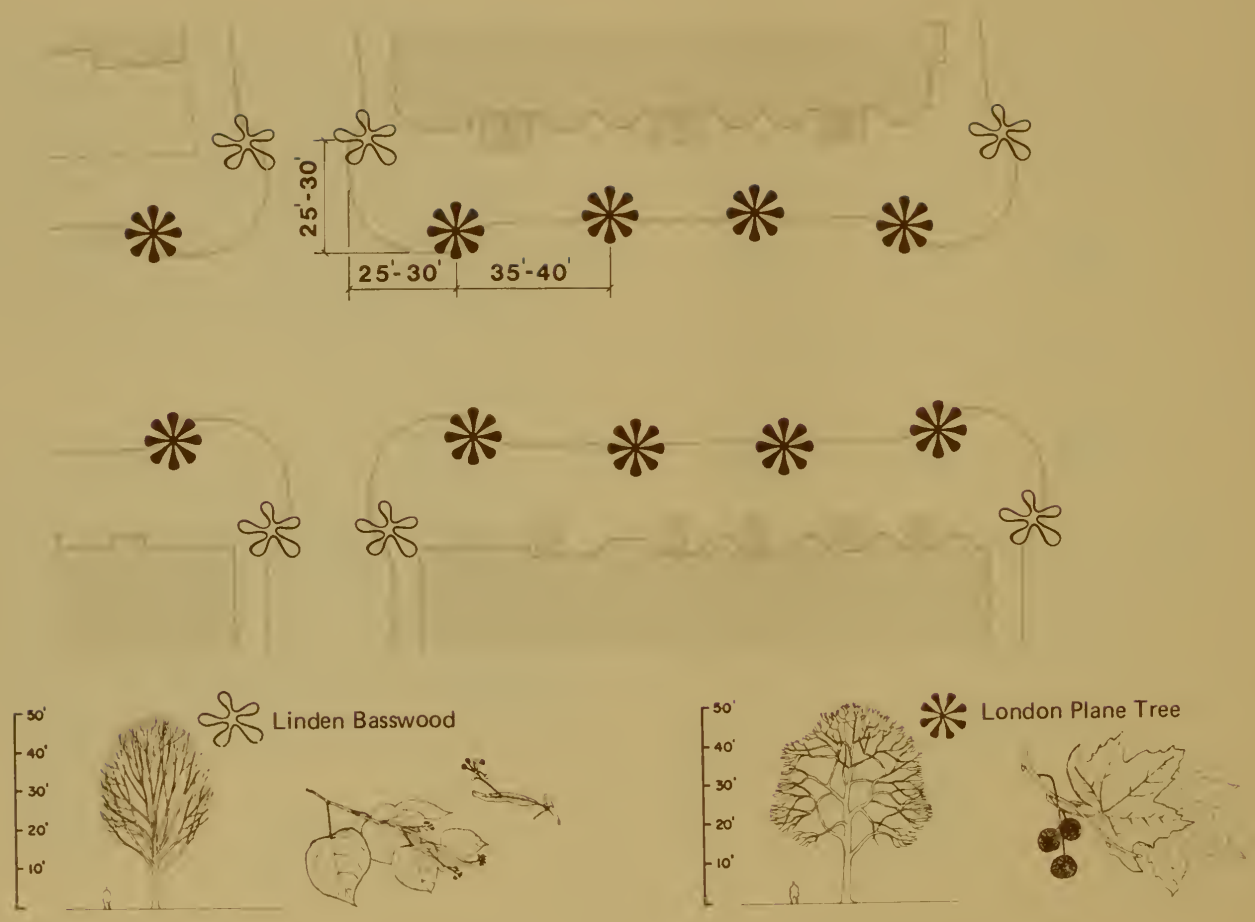
Columbus Avenue Planting

PLANTING

Trees and plantings greatly enhance any urban environment, not only visually but ecologically and psychologically as well. To maintain an urban residential character, trees are proposed to be planted within the sidewalk areas. Flowers and shrubs contained in tubs or low curbings will be utilized to further enhance the urban fabric. Boston Parks and Recreation Department suggests that trees of three to four inch caliper be installed to reduce the high attrition rate experienced with larger trees. Additional esthetic improvement will be achieved by using several species of trees to vary the visual impact.

Columbus Avenue

The street pavement will be 50 feet curb to curb on the 80 foot right-of-way. For the narrower sidewalk areas, more vertical and informal trees such as Green Ash and Little Leaf Linden are proposed to complement the side street plantings. As on Tremont Street, the trees are proposed to be installed in specially designed tree pits with bollards on the curbside of the tree pit for protection as well as bicycle lockups. Occasionally a more decorative tree such as Hawthorne and Crabapple is proposed for varied impact at special areas.



Tremont Street Planting

Tremont Street

At midblock the Tremont Street pavement is 60 feet wide and the sidewalks are each 20 feet wide. Relatively rapid growing trees such as London Plane trees and Little Leaf Lindens are proposed to be planted in specially designed tree pit areas, spaced 35 feet to 40 feet apart, which permit percolation of surface water run-off while eliminating any hazard to the handicapped. Bollards are provided on the street side for protection of the trees as well as for bicycle lockups.

PRELIMINARY COST ESTIMATE

Item	Columbus Avenue	Tremont Street
Roadway (Mixed Sidewalks)	$2,005,100	$2,614,400
Lighting	347,480	364,000
Traffic Signals	150,900	254,100
Drainage & Utilities	152,836	196,970
Street Amenities	113,025	162,900
Maintenance & Protection of Traffic	150,000	200,000
SUB-TOTAL	$2,919,341	$3,792,370
10% Engineering & Contingencies	291,934	379,240
TOTAL	$3,211,275	$4,171,610

PROJECT TOTAL (Mixed Sidewalks) $7,382,885

Roadway (All Brick Sidewalks)	$2,370,300	$3,047,800
SUB-TOTAL	$3,284,541	$4,225,770
10% Engineering & Contingencies	328,454	422,575
TOTAL	$3,612,995	$4,648,345

PROJECT TOTAL (All Brick Sidewalks) $8,261,340

5 CONCLUSION

CONCLUSION

The BRA is committed to the reconstruction of these two streets as part of the Urban Renewal Program. In view of this committment, the consultants are proceeding with the preparation of final design documents for the reconstruction. Most of the side streets which intersect these two streets have been or are being designed and are presently in a phased construction sequence to dovetail with the Tremont Street/Columbus Avenue roadway reconstruction work. The major subsurface utility work (water and sewer) is presently under construction contracts or in the final design phases and will be completed by early spring 1976.

After review of this preliminary design, a series of community meetings and workshops is scheduled this fall during the final design stage, to insure total community acceptance of the developed design in detail.

The redesign and reconstruction process of these two streets, while unique in Boston, could serve as a model for future in-city street reconstruction work. This reconstruction shall provide for a more organized, safe, orderly and pleasant street for all of its users to experience.

APPENDIX

COST ESTIMATE DETAILS

ROADWAY – COLUMBUS AVENUE AND TREMONT STREET

Columbus Avenue

Item	Quantity	Unit Cost	Total
Earth Excavation	6,400 cy	$ 4.00/cy	$ 25,600
Old Pavement Excavation	26,400 cy	16.00/cy	422,400
Bit. Concrete Excavation by Heater Planer	800 sy	5.00/sy	4,000
Tree Removed	5 ea.	300.00 ea.	1,500
Curb Removed & Reset	10,100 LF	5.00/LF	50,500
VA-4 Curb	6,800 LF	10.00/LF	68,000
Bit. Concrete Pavement	39,700 sy	15.00/sy	595,500
Granite Rubble Block Pavement	3,300 sy	33.00/sy	108,900
Brick Sidewalk	6,800 sy	36.00/sy	244,800
Concrete Sidewalk	16,600 sy	14.00/sy	232,400
Bit. Concrete Sidewalk	1,800 sy	9.00/sy	16,200
Pedestrian Ramps	144 ea.	300.00 ea.	43,200
Trees	226 ea.	850.00 ea.	192,100
	Roadway Total (Mixed Sidewalk)		**$2,005,100**
All Brick Sidewalk	23,400 sy	36.00/sy	842,400
	Roadway Total (All Brick Sidewalk)		**$2,370,300**

Tremont Street

Item	Quantity	Unit Cost	Total
Earth Excavation	6,000 cy	$ 4.00/cy	$ 24,000
Old Pavement Excavation	43,100 cy	16.00/cy	689,600
Gravel Borrow	9,000 cy	7.00/cy	63,000
Tree Removed	8 ea.	300.00 ea.	2,400
Curb R+R	11,000 LF	5.00/LF	55,000
VA-4 Curb	7,100 LF	10.00/LF	71,000
Bit Concrete Pavement	52,600 sy	15.00/sy	789,000
Brick Sidewalk	9,200 sy	36.00/sy	331,200
Concrete Sidewalk	19,700 sy	14.00/sy	275,800
Bid Concrete Sidewalk	500 sy	9.00/sy	4,500
Pedestrian Ramp	174 ea.	300.00 ea.	52,200
Tree	302 ea.	850.00 ea.	256,700
	Roadway Total (Mixed Sidewalk)		**$2,614,400**
All Brick Sidewalk	28,900 sy	36.00/sy	1,040,400
	Roadway Total (All Brick Sidewalk)		**$3,047,800**

STREET LIGHTING – COLUMBUS AVENUE AND TREMONT STREET

Columbus Avenue

Lights 143 @ $2,360/Light	=	$337,480
Control Cabinets 5 @ $2,000	=	10,000
Total		**$347,480**

Tremont Street

Lights 150 @ $2,360/Light	=	$354,000
Control Cabinet 5 @ $2,000	=	10,000
Total		**$364,000**

Cost Per Light

3" Steel Conduit $15.00/LF @ 70' Ave./Light	=	$ 1,050
Handhole (1/2 per Light) $330.00/2	=	165
Light Base		275
Light Post		600
Luminaire		270
Total		**$ 2,360**

TRAFFIC SIGNALS – COLUMBUS AVENUE AND TREMONT STREET

Columbus Avenue

Location	Amount
Columbus Avenue @	
West Newton Street	$ 36,300
West Canton Street	34,000
Dartmouth Street	37,800
Clarendon Street	33,800
Interconnect Cable 2000′ @ 4.50	9,000
Total	**$150,900**

Tremont Street

Location	Amount
Tremont Street @	
Reloc. Columbus Avenue	$ 41,400
Kendall Street	31,700
West Newton Street	33,000
Dartmouth/West Dedham Street	36,100
Union Park	32,900
Waltham Street	17,600
East Berkeley Street	34,800
Interconnect Cable 5900′ @ 4.50	26,600
Total	**$254,100**

DRAINAGE AND UTILITIES – COLUMBUS AVENUE AND TREMONT STREET

Columbus Avenue

Item	Quantity	Unit Cost	Total
Drainage Structure Removed	70 ea.	$ 165.00 ea.	$ 11,550
Frame & Grate R&S	70 ea.	35.00 ea.	2,450
Catch Basin or Manhole Change in Type	59 ea.	275.00 ea.	16,225
Catch Basin	20 ea.	1,000.00 ea.	20,000
Manhole	5 ea.	1,200.00 ea.	6,000
12" RCP	1,635 LF	20.00/LF	32,700
Drop Inlet	30 ea.	600.00 ea.	18,000
Cleaning Drainage Structure	59 ea.	175.00 ea.	10,325
Gate Box, Meter, R&R	166 ea.	71.00 ea.	11,786
Hydrant R&R	25 ea.	600.00 ea.	15,000
Police & Fire Alarm Box	5 ea.	1,100.00 ea.	5,500
Police & Fire Alarm Box R&R	5 ea.	660.00 ea.	3,300
		Drainage & Utilities Total	$152,836

Tremont Street

Item	Quantity	Unit Cost	Total
Drainage Structure Removed	20 ea.	$ 165.00 ea.	$ 3,300
Frame and Grate R+S	20 ea.	35.00 ea.	700
Drainage Structure Remodel	26 ea.	220.00 ea.	5,720
Catch Basin	25 ea.	1,000.00 ea.	25,000
Manhole	5 ea.	1,200.00 ea.	6,000
12" RCP	230 LF	20.00/LF	4,600
Intersection Drainage	12 ea.	7,750.00 ea.	93,000
Gate Box, Meter, R+R	210 ea.	71.00 ea.	14,910
Hydrant R+R	52 ea.	600.00 ea.	31,200
Police & Fire Alarm Box R+R	19 ea.	660.00 ea.	12,540
		Drainage & Utility Total	$196,970

STREET AMENITIES – COLUMBUS AVENUE AND TREMONT STREET

Columbus Avenue

Item	Quantity	Unit Cost	Total
Bench	76 ea.	$ 900.00 ea.	$ 68,400
Trash Receptacle	42 ea.	500.00 ea.	21,000
Bus Shelter	4 ea.	3,750.00 ea.	15,000
Coal Vault Cap R+R	6 ea.	1,000.00 ea.	6,000
Sign and Post	21 ea.	125.00 ea.	2,625
		Street Amenities Total	**$113,025**

Tremont Street

Item	Quantity	Unit Cost	Total
Bench	111 ea.	$ 900.00 ea.	$ 99,900
Trash Receptacle	74 ea.	500.00 ea.	37,000
Bus Shelter	4 ea.	3,750.00 ea.	15,000
Coal Vault Cap R+R	6 ea.	1,000.00 ea.	6,000
Sign and Post	40 ea.	125.00 ea.	5,000
		Street Amenities Total	**$162,900**

AGENDA

9 April
BRA/Tremont/Columbus

I. **INTRODUCTION OF PANELISTS**

SECOT/SEPAC
BRA
CEM/CBT

II. **STATEMENT OF HISTORY**

A. SECOT
B. TREMONT/COLUMBUS (UP TO NOV. 1974)
C. PURPOSE OF THE PROJECT (GOALS & OBJECTIVES)

III. **PURPOSE OF THE MEETING**

A. OVERALL CONCEPTS
B. MEDIAN vs. NO MEDIAN (TREMONT)

IV. **STATUS REPORT**

A. HOW DID WE GET TO WHERE WE ARE NOW (PROCESS)

B. COLUMBUS AVE.

1) EXTENT OF RECONSTRUCTION (LIMITS OF WORK)

a. CROSS SECTION
–EXISTING ROADWAY & SIDEWALK
–PROPOSED ROADWAY & SIDEWALK

2) FUNCTIONAL CHANGES–
–CHANGES IN GEOMETRIC ALIGNMENT
–SIGNALIZED INTERSECTIONS
1. EXISTING
2. PROPOSED
–MAJOR CHANGE AREAS
(CHANNELIZATION & CLOSINGS)

C. TREMONT STREET

1) CROSS SECTION
–EXISTING ROADWAY & SIDEWALKS
–PROPOSED ROADWAY & SIDEWALKS
- MID-BLOCK
- AT THE INTERSECTION

2) FUNCTIONAL CHANGES
–ALIGNMENT CHANGES (NKDNS.)
–SIGNALIZED INTERSECTIONS
1. EXISTING
2. PROPOSED
–MAJOR CHANGE AREAS

LISTING OF OPTIONS RE: MEDIAN–NO MEDIAN

1) DESIGN TEAM PREFERANCE

2) SECOT VIEWS

V. QUESTIONS & ANSWERS FROM FLOOR (SHOULD BE DIRECTED TO SECOT WHO WOULD REFER TO BRA/ SECOT/OR CONSULTANT TEAM)
(MEDIAN–NO MEDIAN PREFERENCE)

VI. CLOSING OF MEETING

–REMINDER OF UPCOMING NEIGHBORHOOD WORKSHOPS

–REMINDER OF CONTACTS – SECOT
– N.G.

HIGHLIGHTS

** COLUMBUS AVE.

1) Buckingham – Clarendon
2) Dartmouth – Chandler
3) Appleton
   3a) Methunion Offset
4) Tubman Sq. – W. Newton
5) Concord Sq. – Rutland
6) Worcester Sq. (Signal)
7) Mass Ave.
8) Camden at Carter School
9) Davenport (School)
10) Sarsfield (Columbus to Tremont)
    (What remains open)
11) Other highlights of street direction changes

* TREMONT

1) Arlington Sq.
2) Appleton
3) Berkeley
4) Arts Plaza – Waltham Signal
   – Close Clarendon
5) W. Newton
6) Dartmouth/W. Canton Re: IBA
7) Concord
8) Mass Ave.
9) School Crossing
10) Kendall Lenox
11) Fred. Douglass Sq.
12) New Intersection with Columbus

COMMUNITY PARTICIPANTS

Phyllis Williams	
C. Vincent Haynes	
Maureen O. Solnik	
Bob Casper	
Mary Gillis	
Bob Henry	
Evelyn M. Easa	
Sally Newpick	
Marc Cooper	34 Montgomery St.
Jeffrey Stonberg	57 Chandler St.
Arthur F. Howe	81 Montgomery St.
Mr. Barnes	92 Appleton St.
Mary McHale	50 Lawrence St.
Mary Minezzi	70 Clarendon St.
Clair Barker	156 Warren Ave.
Olga R. Ulchak	19 Bradford St.
Joseph F. Casey	4 St. Charles St.
H. F. vonHumer	107 Warren St.
Emily F. McCann	70 Chandler St.
Gloria Rogers	2B Emerald Ct.
A. Rogers	2B Emerald Ct.
J. G. Park, Jr.	23 Gray St.
John Herbert	Gray St.
Deby Green	72 Chandler St.
Mary Rogouter	Clarendon St.
Barney Frank	
Pat Corcoran	92 Appleton St.
Lula Brown	64 Chandler St.
Fred Berg	70 Chandler St
Paul Gibb	25 Appleton St.
Barbara Broadfield	755 Tremont St.
Nina Kingade	72 Chandler St.
Lillian Kelly	755 Tremont St.
Ermu Dean	755 Tremont St.
Wilhelmine Crosson	195 W. Springfield St.
Mildred G. Warwick	755 Tremont St.

Helen Olmstead	55 Tremont St.
Mr. & Mrs. J. S. Ladd	25 Concord Sq.
Alexandra Perkins	13 Rutland Sq.
Mr. & Mrs. Dwight Storey	223 W. Springfield St.
Douglas Soule	32 Concord Sq.
Nathaniel Redmond	755 Tremont St.
Douglas Haynes	24 Concord Sq.
Dave Mitchell	30 Concord Sq.
Charles Allen	755 Tremont St.
Blanche Allen	755 Tremont St.
Pearl Mosby	755 Tremont St.
Marie Fernandes	755 Tremont St.
Beatrice Jackson	755 Tremont St.
Mattie Haltinanger	755 Tremont St.
Daisy Tucker	755 Tremont St.
Lucy Clough	755 Tremont St.
Samuel A. Lasoff	533 Massachusetts Ave.
Terry Corey	548 Massachusetts Ave.
Michael Whittaker	559 Massachusetts Ave.
Ronald Crichlow	538 Massachusetts Ave.
Jaci Hall Crichlow	538 Massachusetts Ave.
Clifton Curry	460 Massachusetts Ave.
Charlie Smith	604 Massachusetts Ave.
Roberta Miller	791 Tremont St.
Bettie Fordham Nolan	515 Massachusetts Ave.
James Nolan	515 Massachusetts Ave.
Robert Clayton	585 Massachusetts Ave.
Hillary T. Jones	482 Massachusetts Ave.
Shep Ferguson	527 Massachusetts Ave.
Ruth Mayberry	527 Massachusetts Ave.
Kendra Ferguson	527 Massachusetts Ave.
E. Murray	474 Massachusetts Ave.
M. Adams	627 Massachusetts Ave.
Carlos Gonzales	585 Massachusetts Ave.
Kathy Quenze	
Tony Tanny	26 Union Pk.

Jill Bertrand	43 Union Pk.
Jon Bartels	21 Union Pk.
Liz Oberg	21 Union Pk.
R. Mayer	42 Union Pk.
Sandy Brenton	29 Union Pk.
Al Boer	20 Union Pk.
Florence Williams	212 W. Concord St.
Judy Deleus	110 W. Concord St.
Barbara Sommerfeld	150 W. Concord St.
Mildred A. Burke	126 W. Concord St.
David C. Pits	136 W. Concord St.
V. Judson Knoll	146 W. Concord St.
Ben Blake	104 W. Concord St.
Edward Collins	144 W. Concord St.
Melissa Zeller	138 W. Concord St.
Jeffrey B. Gray	155 W. Concord St.
Frank R. JeLula	110 W. Concord St.
Bill Sommerfeld	150 W. Concord St.
Robert H. Yelton	152 W. Concord St.
David Kaufman	98 W. Concord St.
Tom Higgins	147 W. Concord St.
Donna Clarean	156 W. Concord St.
Don Kerr	
Jim Geis	
L. Songi	28 Dwight St.
D. Shibut	50 Dwight St.
W. Swarr	50 Dwight St.
Dorothy Zaborowski	54 Dwight St.
Nancy Payton	20 Hanson St.
Joel Claydon	13 Bond St.
Carol Noell	19 Dwight St.
Mary Rachlipe	18 Dwight St.
Paul DiAngelo	8 Taylor St.
Robert Johansen	22 Milford St.
Bill Lauer	8 Taylor St.

Ben Kimpers	29 Milford St.
Lou Dangall	38 Dwight St.
David Leach	38 Dwight St.
Beula Byers	11 Taylor St.
D. B. Naylor	9 Taylor St.
T. J. Ewing	16 Milford St.
P. J. Metz	94 Waltham St.
Ted Landsmark	540 Massachusetts Ave.
Alexander Cassie	577 Massachusetts Ave.
Karol McIlvaine	627 Massachusetts Ave.
Mr. & Mrs. Thomas Cullen	547 Massachusetts Ave.
E. R. Profit	542 Massachusetts Ave.
N. C. Dow	542 Massachusetts Ave.
A. Chanin	537 Massachusetts Ave.
Albert Dob	542 Massachusetts Ave.
John G. Bynoe	543 Massachusetts Ave.
Karen Rheinlander	540 Massachusetts Ave.
Vincent Armin	539 Shawmut Ave.
Gladys Buchanan	546 Massachusetts Ave.
Elouise J. Williams	430 Columbus Ave.
E. R. Powell, Jr.	405 Columbus Ave.
Darlean Williams	375 Columbus Ave.
Ronald Harrison	375 Columbus Ave.
Debra Randolph	430 Columbus Ave.
Adrian du Cille	465 Columbus Ave.
Ganeth Hills	430 Columbus Ave.
Mamie Bartholomew	430 Columbus Ave.
Dorothy M. Williams	430 Columbus Ave.
Catherine Williams	430 Columbus Ave.
Amie L. Dodaom	465 Columbus Ave.
Cheryl Grant	405 Columbus Ave.
Mark Dellanano	46 W. Newton St.
Oliva Blanchette	63 Rutland St.
Rev. William D. Dwyer	37 Braddock Pk.
Daniel Soltren	47 Pembroke St.

Luis Santos Acevedo	15 Pembroke St.
Fose Luis Acevedo	13 Pembroke St.
Christene Cd Cray	18D Emerald Ct.
So Cam Ng Soo Hoo	11D Village Ct.
L. Loue	37D Village Ct.
Suet Ping Wond	10B Emerald Ct.
Jack Son Wong	5B Village Ct.
Ya Choi Won	8B Paul Pl.
Edward Ha Kim	5C Village Ct.
Cyelad Sawan	11A Village Ct.
Art Bowin	Boston
Ed MacGregor	438 Tremont St.
Gloria Rogers	2B Emerald Ct.
Mary Flannelly	15B Castle Ct.
Madelin Hakim	5C Village Ct.
Marie Alexander	19C Castle Ct.
Felix Vazquez	7C Village Ct.
John Enos	22 Milford St.
Lynn Newcomb	663 Tremont St.
Jim Oser	131 W. Newton St.
Joshua Young	159 W. Newton St.
David Perry	30 Dartmouth St.
Sally Merry	134 W. Concord St.
W. E. Prowler	54 Melrose St.
Deborah Rivers	7 Union Pk.
A Butters	200 Warren Ave.
Herbert P. Milanes	537 Columbus Ave.
Max Pounder	116 Appleton St.
Jim Macgregor	3 Dartmouth Pl.
Craig Stark	162 W. Brookline St.
M. Schneeberger	36 Upton St.
Daniel Soltren	47 Pembroke St.
Bill Harrigan	21 E. Springfield St.
Bernard Hayes	142 W. Canton St.
Mary Hayes	142 W. Canton St.

Clare Hayes	156 W. Canton St.
Paul Turnberg	150 W. Newton St.
V. Lloyd Jameson	36 Dwight St.
Mary Minezzi	70 Clarendon St.
Mary Rozantes	32 Clarendon St.
Mel King	4 Yarmouth St.
Ferdinand P. Arenella	11 Rutland Sq.
Anne Dodson	127 W. Newton St.
Colin Diver	118 W. Newton St.
Linda Trum	116 W. Newton St.
James J. Coles	38 Rutland Sq.
Harold Langell	35 Braddock Pk.
Callie Cox	85 Hammond St.
Charlie Mae Burns	15 Hammond St.
Stephen Grohe	
Judity Grohe	144 W. Newton St.
Mark Manuel	405 Columbus Ave.
Mary Manuel	405 Columbus Ave.
Andree Beckstoffer	126 Marlbrough St.
Hena J. Beckstoffer	126 Marlbrough St.
Barbara Cherubini	172 W. Newton St.
Barker/Duffy	119 Pembroke St.
Nancy Stutzman	123 Pembroke St.
Marcia Myers	21 Dartmouth Pl.
Dennis Sterzin	791 Tremont St.
Craig Halvarson	139 W. Canton St.
Guy Graham	76 Waltham St.
Nancy Mitchell	30 Concord Sq.
Ellen Rich	39 Concord Sq.
Vivian Williams	130 W. Newton St.
Sally Harris	18 Commonwealth Ave.
Patricia Quintana	612 Tremont St.
Helen Torres	681 Tremont St.
Robert Sabatini	55 Revere St.
Laura Thompson	154 W. Newton St.

Willie J. Mandrell	164 W. Newton St.
Josephine Mandrell	164 W. Newton St.
Constantine Tsaovsis	14 Braddock Pk.
Paul C. Maggi	57 Hemenway St.
Anna Taft	29 Dwight St.
Joan Metz	94 Waltham St.
Dennis Kalla	37 Worcester St.
Fred Mardmald	5 Concord Sq.
Katherine Robinson	9 Braddock Pk.
Sam Clark	
Anne Clark	161 W. Newton St.
Betsy Johnson	58 W. Rutland Sq.
John Hennen	8 Cazenove St.
Jane Fitzsimmons	8 Cazenove St.
Mike Dougall	38 Dwight St.
Phillis McDonough	16 Dartmouth St.
Patick McDonough	16 Dartmouth St.
Bill Tarnowski	36 Rutland Sq.
Eleanor Strong	164 W. Brookline St.
Donna Claveau	156 W. Concord St.
Pauline Harrell	15 Concord Sq.
David Ofsevit	83 Warren Ave.
George Robertson	29 Holyoke St.
Ed Stickradt	180 W. Brookline St.
Bob Casper	11 Upton St.
Julia Binkerd	24 Upton St.
Dan Prigmore	24 Upton St.
A. Russell	
R. Truesdale	166 W. Brookline St.
Clark Frazier	29 Union Pk.
Alex Taft	29 Dwight St.
Ellen Gordon	132 W. Newton St.
Ken Campbell	46 Dartmouth St.
Susan Campbell	46 Dartmouth St.
Ken Krockmeyer	12 Holyoke St.

Len Newcomb	663 Tremont St.
Terri Ragot	18 Dartmouth St.
Michael Kane	
Martin Gopen	24 Rutland Sq.

BUSINESS PEOPLE'S COMMENTS

The following comments are opinions of business persons as expressed either at the business persons meetings or as interviewed by the community liaison person.

Day Care Center
"You want to know what we need? This is strictly a children's outlook – we need more grassy areas. There's nowhere to take kids these days that's close. You see I have a degree in Urban Design and . . . ."

Paul's Export Clothing
"No!! No benches or wider sidewalks or anything. Not until you all clear up these traffic problems down here and provide us with some parking."

Antique Shop
"Fantastic!! When do they start?"

Ohlingers Liquor Store
"I wouldn't suggest that you put benches on the sidewalk in this area. Have you taken a look out there to see who would use them?"

Tony's Athens Market
"New streets and sidewalks? What are they going to do about these sewers. Do you realize I have to walk up the street a half block before I can open my store. And I operate on the corner."

Steak and Onion Subshop
"Yes, I'd like to see a new street and sidewalk. But how are you going to clean up the area? No one wants to come down here because of the drunks."

Cal's of Boston
"The last time you were here I told you we needed additional parking. Have we gotten any yet?"

Men's Shoe Store
"I'll tell you something . . . I've been on this street a long time. But this is the best they've done so far."

Betty Gibson, Real Estate
"No, I'm against the median, but the streets should be repaired. Why . . . Tremont could be another Newbury Street, hopefully without the taxes and rent."

John Goll, Auto Insurance
"Fix up the streets and sidewalks, huh? Do you believe them?"

Cyclorama
"What about the traffic problems? Any more signal lights."

Dollar Shoe Store
"That's the best news I've had since I moved in here. How long have I been here? Oh . . . two months or so."

Buck's Head Gallery
"A 20 foot sidewalk! Who's going to clean it? Who's going to shovel it in the winter? Who's going to walk on it? It would be like a big field. We don't have enough people walking to warrant a sidewalk of that size. All these new people who . . . ."

I. Ross & A. Fadoul, Attorneys
"I'ts something they should have done a long time ago. But I can wait another year."

Elow's Plant Shop
"Sure I'm in favor of rebuilding the streets. The South End is a very unique place. You all should remember that when your're designing. One last comment, 'Support Your Neighborhood Business'."

Do Sonto Variety Store
"No, I'm too old to attend any meetings. All I can do now is to open up in the morning and go home at night."

Rainbow Lounge
"Does this project have anything to do with tearing down houses or the closing of bars?"

NAACP Vet. Service Center
"It's been a long time coming. Trees too? Great."

Concilio Drug Center
"If they're going to increase the sidewalk width and narrow the pavement, what's going to happen to the traffic?"

Bottled Liquor & Wine Store
"We need to slow this traffic down. There's kids and elderly trying to cross all the time. Any additional signals for this area?"

Li-Haul Dealership
"What about us? Where's the new road planned to be?"

Bob the Chef's
"New streets, sidewalks, lights and trees? You're kidding."

Bendek Realty
"OK. I'll help you if I can. Just keep me informed on the issues and decisions."

Sax Steak Sandwich Shop
"This corner is unbelievable. I'd love to see something (constructive) done to it. How are you going to get rid of some of these people — you know what I mean?"

Tailors
"What's the City going to do about parking? The police enforcement is ridiculous. Sometimes they tag, sometimes they don't — depending upon the weather, I believe."

La Nocion Elegancia
"I hope I can stay in business enough to see it through."

Columbus Wine Co.
"Fix up the streets? You'd better fix up the sewers first!"

Big John's Shoe Shine
"Sure it would be nice. What are they going to do about these drunks. Every morning I have to clear the bottles from out front to open up."

Claremont Cash Market
"Won't this drive property values higher? How can we cope with the increased taxes?"

Lillie's Deli
"You want to know what we need? I'll tell you — PARKING!!! We need more parking. Another thing that I know you can't do anything about but enforcement of traffic is a joke."

Green Leaf Florists
"Great!! Sounds good."

Torres on Tremont
"We need a median on Tremont for the kids and the elderly; we need better lights and to get these signals off of the corners. Another thing is . . ."

Sprogis Real Estate
". . . and we should make every effort to keep our small ethnic businesses. If we don't, we'll lose our character of the street. They are what makes our neighborhood unique."

Lew Shing's Chinese Restaurant
"Make the streets narrower? And sidewalks wider? You should do the opposite. How are cars going to get in and out like they do now? And no trees OK?"

The Bargain Store
"Now be honest with me? Are you really asking for ideas or are the plans already done and you're bull — — — everyone?"

Modern Shoe Repair
"Someone should do something about these drains; you ever see them in bad weather? You have to walk in the street just to go to the corner."

Eloy's Variety Store
"When do they start?"

Artichoke
"What! I'm against whatever they're doing besides giving the street a complete new look. Everything."

Back Bay Workshop
"You gotta be kidding. Really?"

Economy Glass Corp.
"Damn . . . It's about time, you know . . . I really can't believe it. Do you think it will go through?"

Eco-Tecture, Architects
"Yes I suppose we should take an interest in this project."

RESIDENT'S COMMENTS

"This has got to be a unique street – people using it for gatherings along its entire length. It must be designed as a unique street."

"If we can't widen the sidewalks, we don't want to change the street."

"What's behind your scheme of things? Is the state trying to push for the inner belt again and these streets a part of that plan?"

"Ramps must be provided for we elderly, so should benches and trees."

"If you want someone to sit in front of your house all night drinking, put in a bench."

"Brick is historic in the South End. We have to put it back into the sidewalk."

"Will this reduce the speed of traffic on Tremont Street?"

"You should watch the cabs making U-turns from my window."

"The crosswalks should have a buzzer or bell for blind people to know when to cross, like Watertown Square."

"I think those bottlenecks are a good idea."

"I think trees would be nice on the street. They used to have trees here you know, but they took them down a few years ago. I don't know why, do you?"

"Something's gotta be done about this street. It's in terrible shape."

"The drawings look good but will the street look that good?"

"I've been hearing this for the last ten years. If it happens I'll believe it."

"We want all brick sidewalks so that trees can grow around them, and historically they're correct for the South End."

"Even though we don't want the median on Columbus Avenue, I think U-turns will begin to be a major threat when crossing. There's also not enough light for pedestrians walking, and please – no brick walking surfaces O.K.?"

"Oh yea! Well who's going to walk on a 20 foot sidewalk? This 15 foot one is big enough. Give me a median and present size sidewalks any day."

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